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## THE TREATMENT OF PYELITIS IN INFANCY AND CHILDHOOD*


HERMAN L. KRETSCHMER, M.D.
AND
HENRY F. HELMHOLZ, M.D.
CHICAGO


This paper is based on a series of eleven cases treated by pelvic lavage with silver nitrate, and is intended as a preliminary report of one of our studies of pyelitis occurring in infants and children.

Nothing new is claimed for this method of treatment, that is, pelvic lavage, nor do we lay claim that silver nitrate is a specific, nor is it the only drug that may be or has been used in treating colon bacillus infections of the higher urinary tract. In this paper we wish to present the results obtained in this series of eleven cases that were treated by silver nitrate instillations into the renal pelvis.

The excellent results obtained in the treatment of *B. coli* infections in adults by means of silver nitrate injections of the renal pelvis seemed to justify an attempt to treat a series of cases in this way in order to determine whether or not this form of treatment could be applied to infants and children and, furthermore, to determine whether or not this method possesses advantages over the methods in general use, namely, internal treatment and vaccine treatment.

As a rule, pediatricians have not availed themselves of this form of treatment. The urologist who is prepared to carry out pelvic lavage does not, as a rule, see many of these cases. This situation calls for a closer cooperation between these two specialties than exists at present.

The acute hematogenous unilateral cases of renal infection, more or less fulminating in character, generally call for surgical intervention and will not be considered in this paper.

There are several reasons why this form of treatment has not been employed in infants and children more frequently than it has. Perhaps the first of these is the lack of appreciation that this is possible, and the second, that general anesthesia is necessary.

Nitze,[1] Jacobi,[2] Casper,[3] Portner,[4] Beer,[5] Hyman,[6] Hinman[7] and Quinby[8] have called attention to the possibilities of cystoscopy in children. With the rapid advance in developing and perfecting small cystoscopes, this field has been very materially enlarged so that cystoscopy can be performed in infants as easily as in adults.

Nitze was the first to call attention to the use of cystoscopy and ureteral catheterization in children. He performed cystoscopy successfully in boys as young as 8 years of age. Naturally, because of anatomic conditions it is much easier to perform cystoscopy and catheterize ureters in girls at a much earlier age than it is in boys. Hyman reports a series of more than thirty children under 9 years of age in whom cystoscopy was performed. The youngest patient was a boy of 17 months who was subsequently operated on for kidney tumor. The youngest boy catheterized was under 3 years old, and the youngest girl was 22 months old. In our series the youngest patient was a girl 7 months old, in whom both ureters were catheterized simultaneously and pelvic lavage was carried out.

In boys, because of anatomic considerations, cystoscopy and ureteral catheterization cannot be carried out as early as it can be in girls, although one of us has repeatedly performed cystoscopy on boy babies of 14 months. In order to facilitate cystoscopy and ureteral catheterization in boys, it has been suggested that this may be done through an external urethrotomy incision. Thus far we have not availed ourselves of this procedure.

As this paper deals with the treatment of pyelitis, no attempt will be made to include all of the cases in which cystoscopy has been employed from time to time for conditions other than those to be embraced in this paper.

The value of a routine roentgen-ray examination cannot be overemphasized. Experience in treating adults has demonstrated the value of this procedure before instituting pelvic lavage. In this way several cases of so-called pyelitis were proved to be cases of stone in the pelvis with infection, and hence the patients were spared a long and fruitless course of pelvic lavage. In one of the cases at the Children's Hospital in which the institution of pelvic lavage was considered, a preliminary roentgen-ray examination revealed the presence of a stone in the renal pelvis. Doubtless in some of the cases that are diagnosed as pyelitis and in which pelvic lavage fails to produce a cure, there are factors present which explain the failure, such as the presence of calculi, tuberculosis of the kidney, and stricture of the ureter.

In order not to overlook a possible renal tuberculosis, routine examination for tubercle bacilli were made, including guinea-pig inoculations from urine obtained from each kidney and bladder. In this series no evidence of renal tuberculosis was found.


* From the Otho S. A. Sprague Memorial Institute, Children's Memorial Hospital.



* Read before the Section on Urology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.


1. Nitze: Lehrbuch der Kystoscopie, 1907, p. 97.
2. Jacobi: Lehrbuch der Kystoscopie, Leipzig, 1911.
3. Casper: Handbuch der Kystoscopie, Leipzig, 1911.
4. Portner: Deutsch. med. Wchnschr., 1908, No. 43.
5. Beer: J. Surg., March, 1911.
6. Hyman, A.: Surgical Diseases of the Urinary Tract in Children, Am. J. Dis. Child. **15**: 116 (Feb.) 1918.
7. Hinman, Frank: The Cystoscopic Study of Urologic Conditions in Children, Am. J. Dis. Child. **17**: 305 (May) 1919.
8. Quinby, W. C.: Pyelitis in Children, J. A. M. A. **68**: 591 (Feb. 24) 1917.

The youngest patient treated was 7 months of age. In this case the two ureters were catheterized simultaneously, and both renal pelves were treated with silver nitrate. The oldest child was 10½ years old. Between these the following ages were recorded: one, 1½ years old; one, 2 years old; two, 2½ years old; one, 5 years old; one, 7 years old, and two, 8½ years old. All cases occurred in girls.

There were no untoward results or reactions following instrumentation and treatment. As a matter of fact, these little patients seemed to stand this quite as well as do adults.

TABLE 1.—FINDINGS IN CASE 1 (E. G., GIRL, AGED 5 YEARS)

| | Leukocyte Count | | | Cultures | | | |
|---|---|---|---|---|---|---|---|
| Date | Right | Left | Bladder | Right | Left | Bladder | Treatment |
| 1/ 1/20 | ..... | ... | 200 | ..... | ..... | B. coli | |
| 1/ 7/20 | 500 | 230 | 300 | B. coli | B. coli | B. coli | None |
| 1/12/20 | ..... | ... | 325 | ..... | ..... | B. coli | |
| 1/14/20 | 1,920 | 300 | 340 | B. coli | Contaminated | B. coli | 3 c.c. 0.5% silver nitrate, each pelvis |
| 1/19/20 | ..... | ... | 130 | ..... | ..... | B. coli | |
| 1/24/20 | No specimen | 30 | ... | ..... | B. coli | B. coli | 2.5 c.c. 5% thorium sol. right pelvis; 3 c.c. in left |
| 2/ 2/20 | ..... | ... | 22 | ..... | ..... | B. coli | |
| 2/ 5/20 | 30 | 130 | 60 | Sterile | Sterile | B. coli | 3.5 c.c. 0.5% silver nitrate, lt. pelvis; 3 c.c. in right pelvis |
| 2/10/20 | ..... | ... | 3 | ..... | ..... | Sterile | |
| 2/16/20 | ..... | ... | 0 | ..... | ..... | Sterile | |

It was our object in treating this series of cases to render the urine free of pus and sterile. In other words, no case was considered as cured in which these two requirements were not fulfilled. Symptomatic cures were not considered. It is a matter of general knowledge that there is a big difference between a symptomatic cure and a bacteriologic cure. Not infrequently these patients on admission to the hospital show a great deal of pus and countless numbers of bacteria in the urine. They have a very high temperature, a marked pallor is present, and they appear prostrated. Under routine hospital treatment, namely, rest in bed, bland diet, large amounts of water, the internal administration of alkalis, diuretics and urinary antiseptics, the fever disappears more or less rapidly, the appetite returns, and the patients make an apparently rapid recovery, so far as their general condition is concerned. This may at times occur as rapidly as if the patient had had a crisis, yet a careful examination of the urine discloses that the amount of pus and bacteria present in the urine is just the same after as it was before the clinical improvement took place. In other words, the clinical improvement is very marked, whereas the urinary findings remain unchanged or are only slightly improved.

It has been repeatedly stated by some authors that many of the cases of pyelitis of pregnancy and pyelitis of adolescence are but recurrences of the pyelitis of infancy and childhood. This may be possible, especially if we consider the fact that formerly these cases were treated without any consideration of the urinary findings or the bacteriologic results. As a matter of fact, some authors today are satisfied with a so-called clinical cure, paying little or no attention to the condition of the urine at the time the patient is discharged from treatment.

Thus, Rhonheimer[9] in his conclusions states that albumin, leukocytes, bacteria and epithelial cells may persist in the urine for a year after the acute illness, without necessarily considering these children as being sick, or that any special danger of recurrence persists.

With these views we can not agree. Hence we have not designated as cured any cases that showed either pus or bacteria in the urine.

In nine of the eleven cases, complete cures were obtained; that is, at the time the patients were discharged as cured, the urine was free of pus and the cultures were sterile.

The cultures were reported sterile if no growths were found at the end of forty-eight hours. In order, however, not to overlook the possibility of the presence of slow growing organisms, the plates were kept in the incubator for five days before a final report of a sterile specimen was given, so that it may be stated that in each case in which specimens were obtained, the cultures remained sterile at the end of the fifth day of incubation.

One patient left our observation after the first lavage. The cultures still showed the presence of infection; hence this case is not included under the cures, although the urine was free of pus.

Silver nitrate solution was used in each case. The strength of the solution used was 0.5 per cent. The amount injected varied from 1 c.c. in the infants to 5 c.c. in the older children. As stated above, there were no reactions.

The number of injections required to render the urine sterile varied. Three patients required but one injection of the silver nitrate. Five patients required two injections, and one patient required three injections.

In two cases the kidney urines were sterile before the bladder urine, in one case after two injections and in the other after the first injection. This patient had a *B. paratyphosus* infection. A subsequent examination one week after revealed that the kidneys were again infected.

TABLE 2.—FINDINGS IN CASE 2 (B. S., GIRL, AGED 8½ YEARS)

| | Leukocyte Count | | | Cultures | | | |
|---|---|---|---|---|---|---|---|
| Date | Right | Left | Bladder | Right | Left | Bladder | Treatment |
| 10/15/19 | 800 | 400 | 800 | B. coli | B. coli | B. coli | 3 c.c. 0.5% silver nitrate into each pelvis |
| 10/27/19 | ... | ... | 870 | ..... | ..... | B. coli | |
| 10/29/19 | 30 | 0 | 280 | B. coli | B. coli | B. coli | 3 c.c. 0.5% silver nitrate into each pelvis |
| 11/ 3/19 | ... | ... | 650 | ..... | ..... | B. coli | |
| 11/12/19 | ... | ... | 650 | ..... | ..... | B. coli | |
| 11/19/19 | 240 | 120 | 450 | B. coli | B. coli | B. coli | 2.5 c.c. 0.5% silver nitrate into each pelvis |
| 11/24/19 | ... | ... | 100 | ..... | ..... | B. coli | |
| 11/29/19 | ... | ... | 10 | ..... | ..... | B. coli | |
| 12/ 3/19 | 0 | 0 | 10 | Sterile | Sterile | Sterile | 2.5 c.c. 0.5% silver nitrate into each pelvis |
| 12/ 8/19 | ... | ... | 0 | ..... | ..... | Sterile | |

In treating adults, this observation had been made several times. In some of the cases in which this fact was noted there were relapses or recurrences of the pyelitis. This fact would seem to be of sufficient importance to warrant emphasis because, if the kidneys show sterile specimens and the bladder still harbors infection, may not the bladder be a cause for subsequent recurrences or relapses? That this is possible, we believe. In a publication on cystography,[10] it was shown that fluid may regurgitate from the bladder up the ureter into the kidney pelvis. This phenomonon

9. Rhonheimer: Cor.-Bl. f. Schweiz. Aerzte, Dec. 18, 1919.

10. Kretschmer, H. L.: Surg. Gynec. & Obst. 23: 709 (Dec.) 1916.

was noted in infants and children as well as in adults in a series of cases in which this procedure was carried out both in normal and in pathologic bladders.

Two cases in this series showed regurgitation of bladder fluid into the renal pelvis. This occurred during ureteral catheterization while waiting to collect specimens from each kidney. It was suddenly noted that the fluid ran out of the ureteral catheters very rapidly and that it was colorless. It was assumed that the water of distention in the bladder was flowing up the ureter and was running out of the catheters. In order to prove this assumption, argyrol solution was injected into the bladder, and in a few minutes the water flowing from the ureteral catheters was colored by the argyrol. Although catheters were in both ureters this phenomenon was present only on the left side. Several years ago Hagner [11] drew attention to this regurgitation during ureteral catheterization.

In order to differentiate between a true regurgitation due to insufficiency of the ureterovesical valve or sphincter and between a simple running up of fluid due to the presence of the catheter holding the ureterovesical valve open, the catheters were withdrawn from the ureters and the bladder fluid removed. The bladder was then filled with a 10 per cent. argyrol solution, and a roentgenogram was taken. In neither of these two cases after removal of the catheters did regurgitation up the ureter take place.

In ten of the eleven cases, the colon bacillus was found in pure culture. One patient had a parathyphoid bacillus infection.

In all of the cases the pyelitis was bilateral. There were no cases in which a colon cystitis was found; that is, in which only a bladder infection was present.

Routine leukocyte counts were made on each specimen of urine.[12] This method gives a more accurate estimation of the amount of pus present in the urine than does the use of indefinite terms now in use. Furthermore, when comparing the counts one can see at a glance just how much improvement is made from one treatment to the next. This can best be illustrated by the accompanying tables from two of the cases in this series.

SUMMARY

1. Pelvic lavage with solutions of silver nitrate is a procedure that can be carried out in infancy and childhood.

2. This mode of treatment has rendered the urine sterile and free of pus in nine cases in this series.

3. There have been no complications or unfavorable results of this treatment.

4. All of the cases treated this way had resisted all other forms of treatment.

## ABSTRACT OF DISCUSSION

DR. W. F. BRAASCH, Rochester, Minn.: The suggestion regarding the employment of pelvic lavage for infections of the kidney in children is very interesting. Cystoscopy in children, particularly in boys, is not so easy a procedure as one might be led to believe. However, that is not a serious objection. Pyelonephritis in children disappears spontaneously in the course of time in practically every case. I am under the impression that if one or two pelvic lavages will cure a pyelonephritis, the infection would disappear spontaneously. The contention that the pyelonephritis of children frequently continues and is usually the cause of a chronic pyelonephritis in the adult is open to question. It has been my experience that adult patients with pyelonephritis have no history of urinary infection other than recent. Occasionally pyelonephritis in childhood becomes complicated by ureteral stricture and resulting pelvic dilatation and the condition may then become surgical. It is possible that in this type of case, pelvic lavage and ureteral dilatation might prevent further destruction. Lavage of the renal pelvis in children should in my opinion be rarely employed and then only in the occasional case which is progressive or complicated by mechanical obstruction.

DR. I. L. VAN ZANDT, Fort Worth, Texas: In the case of a girl, 4 years old, who had high fever, severe but variable pain in the abdomen, and occasionally some nausea, no abdominal tenderness, I gave the patient by enema, 4 grains of collargolum, once or twice daily; the bowels having first been washed out. In four days the fever was gone and the child was hungry. This remedy has served me well in several cases of pyelitis. Some months later the urine was found to contain many pus cells. I gave alkalis but got no results. I then gave hexamethylenamin and sandalwood oil. This cleared up the urine in two or three weeks.

DR. MARCELL HARTWIG, Los Angeles: I discovered this disorder in breast-fed children many years ago. I found only one case published and it was found postmortem. At that time I stated that the affection had the characteristics, almost, of typhoid fever, that it was probably mixed in with typhoid fever, and that hexamethylenamin and turpentine had cured my patients. I have not made any further bacteriologic examination. One bacteriologist said that the condition was probably due to the colon bacillus. At the same time, he presented the theory that it probably is a direct transmission through the thin intestinal wall into the blood and hence down into the kidney. I feel now that it is a self-limited disease. One child, aged 2½ years, had a recurrence which yielded to the same treatment.

DR. ABRAHAM HYMAN, New York: Cystoscopy has been neglected in children, because it has not been generally recognized that it is a perfectly feasible procedure. Using proper instruments, there should be no trauma, and aside from the fact that young boys require an anesthetic, the technic is no more difficult than in the adult. Dr. Beer was one of the first to advocate cystoscopy in young children, and the two instruments we use were described by him a number of years ago. The observation cystoscopes are Nos. 10.5 and 12.5 French caliber, and with the catheterizing sheath can readily be detached, making an examining and single catheterizing cystoscope in one. The shafts of the instruments are short, from 9 to 12 cm. in length. We have records of more than fifty children under 9 years of age, cystoscoped during the past five years. The youngest boy examined was 17 months old. Indigo carmin is injected fifteen minutes before examination, and the ureteral orifices are carefully watched for its appearance. The diagnosis can be made in most instances without resorting to ureteral catheterization.

DR. H. J. SCHERCK, St. Louis: A few years ago I made a study of a series of forty cases. The investigation was suggested by the finding of pus in the urine of young children. The children selected for this study did not all complain of symptoms referable to the urinary organs, but were taken at random from the patients in the childrens' service. We found that 6 or 8 per cent. of these children had colon bacillus infection of the urinary tract. These cases were carefully worked up, with cultures of the urine. The histories of those cases in which a distinct colon bacillus infection existed were carefully analyzed. The general conclusions reached were that in the first or second attack the chills and temperature reactions were well marked; that after a while there would be second, third and fourth attacks, each occurrence, however, being less severe than the previous one. This moderation in the exacerbation we attributed to a developing immunity, which made the attacks less severe. In treatment we found that vaccines were of no value. In a few necropsies made on children who died from other causes and in which there was

11. Hagner: Surg., Gynec. & Obst., October, 1912.
12. Kretschmer, H. L.: The Value of Making Leukocyte Counts on the Urine in Infections of the Kidney, J. A. M. A. **69**: 1505 (Nov. 3) 1917.

a distinct pyelitis due to the colon bacilli there was no destruction of the parenchyma of the kidney. This fact coincides with our observation in adults. Our best results so far as our therapy is concerned were from most excessive and prolonged alkalinization of the urine. In the main I agree with Dr. Braasch and disagree with Dr. Kretschmer in regard to the use of instruments in young children. I believe the trauma incident to the manipulation is too severe and followed by too much reaction to make it justified, except in very exceptional cases.

DR. ARTHUR B. CECIL, Los Angeles: I am sure that the cases of which Dr. Kretschmer is speaking are those which have not been self-limited. He is speaking of the type of case which has been allowed to rest, and in which everything possible has been done for a prolonged period of time, in spite of which the infection has continued. I have seen children who have been ill for several years with pyelonephritis. In support of Dr. Braasch's views that pyelonephritis of childhood is self-limited, it is a fact that one finds a great number of children with pyelonephritis and also a large number of adults with pyelonephritis, but I doubt if one sees many patients 15 or 16 years of age with pyelonephritis. I cannot recall a single case. The fact remains, however, that there are children who remain ill for a great period of time, and who become seriously handicapped in their early life. It is in these cases that something should be done. It does not seem to me to be advisable to give instrumental treatment in the case of infants with pyelonephritis, for from the very nature of things it is evident that there could not have been much time for spontaneous recovery to have occurred.

DR. WILLIAM E. STEVENS, San Francisco: I have seen a number of interesting urologic conditions in the children's ward at Mount Zion Hospital and my work has convinced me that, contrary to general opinion, tuberculosis of the kidney is not uncommon in children; that strictures are often encountered in the ureter and urethra of both male and female children; that pelvic lavage is of definite value in pyelitis in children. Recently, in a child, 6 years of age, suffering from an obstinate pyelitis, the urine became microscopically and culturally negative following a single irrigation of the renal pelvis with 1 per cent. silver solution. In my opinion pyelitis is not a self-limited disease. Internal medication, vaccine therapy, etc., will fail to cure a definite proportion of cases. Many of these cases, if neglected, would terminate in destruction of the kidney but clear up following ureteral catheterization and pelvic lavage. Cystoscopy, ureteral catheterization, comparative functional kidney tests and pyelography are also valuable procedures in the diagnosis and treatment of genitourinary conditions in children. Although a general anesthetic is usually necessary, I have been able to do a cystoscopy on a few children between 7 and 9 years of age under local anesthesia.

DR. B. C. WILLIS, Rocky Mount, N. C.: I saw a child, 6 years old, whose temperature ranged from 103 to 105 F. in the afternoon. To be on the safe side we searched for the tubercle bacillus but found none. The roentgen-ray examination for stone was negative. We then got a baby cystoscope, using the Braasch's type, and did a cystoscopy under general anesthesia. We passed ureteral catheters into both kidney pelves and found that she had a pronounced hydronephrosis and dilatation of both ureters, about 1½ inches in diameter. We treated this child once a week with irrigation of the pelves with silver nitrate solution, from 0.5 to 2 per cent. strength. The first few times it was necessary to use a general anesthetic; she then begged us not to use the anesthetic. A cystoscopy was done on her thirty-five or forty times, and she was kept in the hospital for four months. The child gained so much in weight and appearance that her friends hardly knew her. We allowed her to return home with instructions to come once a week for treatment. She made about six trips back and forth and then unfortunately developed measles with the return of all the symptoms greatly exaggerated. We lost her four weeks later. This case was very interesting in that a condition that had existed for four years would respond to proper treatment.

DR. HERMAN L. KRETSCHMER, Chicago: We do not use this treatment in every case of pyelitis. I stated that the patients we treated were those that do not get well on routine management. We follow the same fundamental principles as in adults, but only when other methods fail. It is a fact that pediatricians state that their patients do not get well. Pediatric literature is full of such cases. For that reason I do not believe that pyelitis is self-limited. Some of the patients get well, but there is a certain definite group of patients who do not get well. What are you going to do for those patients? They are the ones we have treated. The fact that one injection cures some cases, as brought out by Dr. Braasch, is no evidence that the disease is self-limited for we have had sterile cultures from patients who have not gotten well under other methods of treatment. Perhaps the injection of the silver did the work. The catheterization may have served to straighten out an irregularity or kink in the ureter, but the fact remains that after the injections, or injection, of silver nitrate, the patients got well and remained well so far as being free from pus and bacteria was concerned. I do not know why some of the men who discussed the paper fail to do this as they said, "because of traumatism." I fail to see where there is any traumatism, or why there should be more traumatism in children than in adults. We have had no cases of traumatism and we have had no reactions. If care is used there is no more traumatism in these cases than in adults. Of course, we are working with small instruments and small patients and at first it is a little harder to do because we are not so accustomed to this work in children; but it can be done successfully.

In reference to pyelonephritis in adults being a continuation of a pyelitis in children, in all of our cases we have laid stress on the fact as to whether or not the patient had pyelitis in childhood. It is surprising to find how many patients will tell you they had "bladder trouble" when they were children. Another point bearing on this question: in a recent number of the *Zeitschrift für gynäkologische Urologie* a pediatrician in a small town in Switzerland where the people intermarried, and remained, took care of different generations of the same families. He went over his old records and found that many of his patients who had pyelitis in childhood, developed pyelitis in adult life and many of them developed pyelitis in pregnanacy. He believes this is a continuation of the pyelitis in infancy and childhood. He also believes that some of these patients are never cured. They are clinically cured but no attention is paid to the urine. Why cannot these patients have recurrences? I was not familiar with the work of Dr. Hartwig. In reference to pyelitis in breast-fed infants, Dr. Schott, one of the men working at the hospital, repeatedly found pyelitis in children 4 days old.

Dr. Scherck said he had found the colon bacillus in the urinary tract in children with other diseases. With this we agree. I also agree with Dr. Scherck that most of the autogenous vaccines are not of very much value. Most of our patients were treated with alkalis. I cannot agree with him that pelvic lavage produces traumatism. Since my return from the army we have had three children of the age of 12 who had definite tuberculosis and on whom we have done nephrectomy. I think that many of these cases are overlooked because we do not suspect this condition. Dr. Hyman says he does not catheterize the ureter. We have no hesitancy in catheterizing the ureters when we think it necessary. I emphasized the fact that all of our patients were girls, which makes the treatment a little easier. There may be relapses after this form of treatment as after all other forms of treatment. Many of these patients have been back in the hospital with other diseases during the winter, mostly pneumonias or respiratory infections, and their urine was at that time still free from pus and sterile.

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**Instinct and Exercise.**—In the natural state animals are compelled by the struggle for existence to lead active lives, and apart from this they indulge in exercise—especially the young—for the sheer pleasure of it; but the struggle for existence does not, in the case of civilized man, necessarily entail much exercise, and if not prompted by instinct to take his proper amount his health tends to suffer in consequence. —*Med. Press*, July 14, 1920.

# OCCLUDED RENAL TUBERCULOSIS*

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Renal occlusion may occur so insidiously that but few subjective symptoms accompany the process. The etiologic factors are numerous and varied. Among the most common causes of the condition are ureterolithiasis and nephrolithiasis, carcinoma of the bladder, pyelonephritis and renal atrophy, stricture of the ureter following infection other than tuberculous, operative trauma, pressure and involvement by abdominal neoplasm, and renal tuberculosis.

Probably the most common factor of renal occlusion is stricture of the ureter in renal tuberculosis. The condition was first recognized as a clinical entity by Zuckerkandl,[1] in 1897, and was described more fully by Smirnow,[2] in 1913. At first it was regarded as a rare condition, and only recently have Caulk and Greditzer[3] and Fowler[4] asserted that it occurs more frequently than is generally supposed.

The records at the Mayo Clinic show that 621 patients were operated on for renal tuberculosis from January, 1900, to January, 1919. In sixty-nine of this number the affected kidney was found to be occluded. Nine of the patients had bilateral renal tuberculosis and sixty patients (9 per cent. of the total number) had unilateral renal occlusion. This number does not include the cases in which occlusion was questionable, and in all probability recent, or in which at operation any active renal tissue was found. Although occlusion in renal tuberculosis may occur suddenly and be permanent, the process is often gradual, and the ureter is temporarily occluded, reopens for a variable length of time, and then gradually becomes occluded permanently. The clinical symptoms often faithfully reflect the time of occlusion. To illustrate: The patient usually has previously had a period of marked frequency and dysuria which suddenly diminished or ceased, the general symptoms improved, and the patient gained weight. If cystoscopy is now performed, the bladder may show but little evidence of cystitis, and the ureter on one side will be found to be occluded.

## REVIEW OF CLINICAL DATA

The preponderance of male patients in this series is in keeping with our previous review of renal tuberculosis, which shows that the condition occurs virtually twice as often in the male as in the female. From the time of onset it may be inferred that renal occlusion generally occurs a decade later than is usual with renal tuberculosis. It is found most frequently among adults in the fourth and fifth decades, and is unusual under 30.

*Frequency.*—Urinary frequency was the chief complaint in thirty-nine (56 per cent.) of the patients, in contradistinction to more than 90 per cent., as is usual in renal tuberculosis. The frequency was marked in only twenty-two of the patients, and moderate and often of variable intensity in the others. Whether or not frequency persists to marked degree following the occlusion will depend on (1) the degree of bladder involvement prior to the occlusion; (2) the intensity of the infection; (3) the length of time since the occlusion, and (4) whether the ureter is completely occluded throughout or whether it permits sporadic secretion from its lower segment. Nine of the twenty-two patients with marked frequency at the time of examination had bilateral renal tuberculosis, and three had other complications to account for the continued frequency, leaving ten (16 per cent.) of the unilateral cases in which frequency was persistent and marked, even though the kidney was occluded.

*Pain.*—Twenty-one patients (30 per cent.) complained largely of pain. The pain was rarely acute and was usually described as a dull ache, generally referred to the lumbosacral area or the lateral abdomen. Several patients complained of acute colic at the time of occlusion. At the time of examination the pain, although usually described as moderate or not definitely localized, was frequently sufficient to interfere with ordinary pursuits.

Although twenty-four patients were found to have hematuria of vesical origin, it was recent in only six, and it was the chief complaint in but one, and he had bilateral disease. Two patients came to the clinic because of persistent renal sinuses following drainage of lumbar abscesses. The discovery of renal occlusion was accidental in six cases, the patients coming because of other conditions. Three patients came because of the discovery of an abdominal tumor; they had no recent symptoms whatever suggestive of involvement of the urinary tract. In one instance the tumor was so large that it caused protrusion of the entire left abdomen.

*Duration of Symptoms.*—The symptoms existed much longer than in cases of active unilateral renal tuberculosis, because, the previous acute symptoms having diminished or disappeared, the patients do not seek medical advice, or because, owing to the obscure nature of the symptoms, renal involvement is not suspected. Only twelve patients were found to have had symptoms of less than one year's duration; the remainder had symptoms over a period of from one to twenty years, with an average of six and one-half years.

*Urinalysis.*—The discovery of the presence of pus or red blood cells in the course of routine examination of the urine called our attention to the involvement of the urinary tract in many cases in which the symptoms were otherwise indefinite. Pus and red blood cells were found in variable quantities in all but eight patients. It must be remembered, therefore, that renal occlusion may exist even though the urine is negative. As a rule the urinary evidence of disease was not gross, and on urinalysis only a moderate number of cells were found. Excluding the cases of bilateral tuberculosis, tubercle bacilli were demonstrated in the urine of nine patients (15 per cent.). In the majority of this group the occlusion was comparatively recent, and the tubercle bacilli doubtless originated from the tuberculous bladder.

*Roentgenographic Data.*—Roentgenographic examination of the urinary tract has repeatedly called our attention to the condition of closed renal tuberculosis which would otherwise have been clinically overlooked. Roentgenographic examination of the urinary tract was made in sixty-two of the cases and

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* From the Section on Urology, Mayo Clinic.
* Read before the Section on Urology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Zuckerkandl, O.: Die geschlossene tuberkulose Pyonephrose, Ztschr. f. Urol. **2**: 97-104, 1908.
2. Smirnow, A. W.: Pyonephrosis tuberculosa occlusa, Folia Urolog. **7**: 229-249, 1913.
3. Caulk, J. R., and Greditzer, H. C.: Occluded Renal Tuberculosis — Autonephrectomy, Med. & Surg. **2**: 453-456 (April) 1918.
4. Fowler, H. A.: Discussion of Occluded Renal Tuberculosis, Tr. Am. Urol. A. **9**: 416-418, 1915.

found to be definitely positive in eighteen (30 per cent.); in a few others the shadows were of a questionable nature. It is evident, therefore, that with occluded renal tuberculosis the caseation with calcareous deposits sufficient to cause a shadow occurs more frequently than with the average renal tuberculosis; the shadow, as a rule, is more extensive and may outline the entire kidney. The shadow varies greatly in density, and often shows lobulations in the kidney substance. The frequent discovery of these shadows, when the symptoms are not at all suggestive of involvement in the urinary tract, warrants the routine roentgen-ray examination of every patient who has chronic urinary frequency or obscure abdominal and lumbar pain.

*Cystoscopic Data.*—The clinical diagnosis of renal occlusion can usually be made by means of cystoscopic examination. It is impossible only when the bladder is so inflamed or contracted that satisfactory cystoscopy is difficult. As a rule, however, the bladder is not markedly inflamed and the absence of a meatus on one side and evidence of overfrequent secretion from the other meatus are sufficient to direct attention to the probability of unilateral renal occlusion. Cystoscopic examination showed that the bladder was practically normal in twenty (33⅓ per cent.) of the cases in which there was unilateral tuberculosis. There was evidence of slight inflammation in thirty-three others, so that in fifty-three (88 per cent.) the bladder was but little involved. Aside from the cases in which there was bilateral disease, there were but seven (11 per cent.) in which cystitis was extensive. The pathologic condition of the bladder may be of three types: (1) marked inflammation or contraction; (2) one or two localized ulcerated or inflamed areas surrounding or adjacent to the infected meatus, and (3) a normal bladder with eradication of the meatus. In the last type the site of the meatus was frequently represented by an area of granulation tissue. It must be remembered, however, that error in the cystoscopic diagnosis of renal occlusion may readily be made. We had this experience several years ago in one case in which the cystoscopic examination and functional tests led us to believe that renal occlusion existed and at operation the kidney was found to be normal. It is obvious that the occlusion must have been temporary at the time of cystoscopic examination and may have been due to temporary reflex ureteral spasm caused by the cystoscopic irritation. Inspection of the diseased meatus hidden in the ulcerated and edematous mucosa is often misleading. In a few of the cases the bladder was so badly deformed that it was quite impossible, even with the aid of indigocarmin, to determine whether the meatus was functionating.

The differential functional test is of considerable aid in the determination of occlusion. If only one kidney can be catheterized, and the phenolsulphonephthalein secretion from that kidney is from 25 to 30 per cent. in fifteen minutes as the result of hypertrophy, and if there is no dye to be found in the bladder, it may be inferred that the other knidney is occluded. It should be remembered, however, that temporary occlusion, such as often occurs from reflex irritation of the cystoscope, may cause the absence of phenolsulphonephthalein in the bladder. In the presence of marked vesical inflammation and deformity when inspection of the meatus is unsatisfactory, this might be confusing. Furthermore, should there be a return flow alongside the ureteral catheter, the discovery of the dye in the bladder might mislead to the inference that there is function in the other kidney. In such cases a repetition of the functional test with a large occluding catheter is advisable. A correct preoperative diagnosis was made in forty (63.8 per cent.) of the cases of occluded renal tuberculosis in this series. In virtually all in which operation was performed during the last five years, the condition had been recognized clinically prior to operation.

*Operation.*—Nephrectomy for occluded renal tuberculosis is, as a rule, rendered easier when the kidney has been occluded and dormant for a long period. Nephrectomy, however, in cases of recent occlusion complicated by large pyonephrosis or diffuse perinephritis, may be more difficult. In thirty-seven (53.6 per cent.) cases the occluded ureter was found to be in such condition that it could be tied and dropped back and the wound closed without drainage. In thirty-four of this number the wound healed by first intention. In the others, in which drainage was established, the majority healed in a month or two following the operation.

*Postoperative Data.*—Only one (1.6 per cent.) of the sixty patients with unilateral occluded renal tuberculosis died as the result of operation. Complete postoperative data were obtained in fifty-eight (84 per cent.) of the total number operated on. Excluding the patients with bilateral tuberculosis, all but one of whom are reported dead, eight of the patients (15 per cent.) have died. This is a little less than the average total mortality of 20 per cent., and is what might be expected since the renal occlusion may be regarded as an index to the patients' increased resistance to the infection.

*Postoperative Condition.*—The majority of answers to the letters of inquiry sent to the patients show improvement or complete relief of the various preoperative symptoms. Of the patients whose chief complaint was dysuria, all but nine (18 per cent.) noted considerable improvement or are entirely well of the bladder trouble. If the bladder had become widely infected with consequent contraction and deformity; the prognosis following nephrectomy was not so favorable as for patients with bladders less diseased; a few patients have improved following nephrectomy, even though the bladder was greatly contracted. The degree of improvement of bladder symptoms, however, will vary with the time of occlusion; if of recent origin, improvement is much more marked than if occlusion has taken place some time previously. Marked improvement in the general condition of the patients was noted in thirty-three (67 per cent.); the gain in weight averaged 19 pounds. Of considerable interest is the fact that in the group of patients who complained of dull pain in the dorsal or lateral abdominal areas, the majority were entirely relieved following nephrectomy.

*Focus of Infection.*—The possibility of an occluded tuberculous kidney acting as a focus of further tuberculous infection must be considered. It would be logical to assume that in some cases *Bacillus tuberculosis* remains dormant in the remnant of the kidney tissue, and that in a period of lowered resistance it might be carried to other portions of the body. I am under the impression, however, that if the kidney has been definitely occluded and dormant for many years, the chances of infection are not very great. In order to determine whether or not any tubercle bacilli might exist, 5 c.c. of an emulsion of the substance of the occluded tuberculous kidney from five patients

were injected into guinea-pigs. In four no evidence of tuberculous infection could be found. In one case, however, the guinea-pig died two months after the inoculation with evidence of diffuse tuberculosis. The patient, however, had a history of recent infection and occlusion, and some atrophic kidney tissue remained. It may be concluded that if the kidney has been dormant for many years, unless there are definite symptoms referable to the kidney, little good will be derived from a nephrectomy. If, however, any of the following conditions are present operation is indicated: (1) recent occlusion; (2) possibility of occasional reopening of the ureter and consequent reinfection of the bladder; (3) persistent pain referred either to the abdominal or to the lumbar region; (4) the presence of a large abdominal tumor, and (5) physical debility or evidence of focal infection.

### CONCLUSIONS

1. Renal occlusion occurs in about 10 per cent. of the cases of chronic renal tuberculosis.
2. It can be recognized by means of clinical, roentgenographic and cystoscopic data in fully 90 per cent.
3. The usual symptoms are persistent frequency, dull pain or abdominal tumor; they usually extend over a period of many years.
4. The occluded kidney may be a focus of infection, if the occlusion is of recent occurrence. If it has existed for many years it usually becomes sterile.
5. In the presence of persistent frequency, dull pain or abdominal tumor, nephrectomy is indicated.
6. The postoperative results are usually excellent, with recovery from the various symptoms.
7. In cases of bilateral tuberculosis, the removal of an occcluded kidney will not benefit the patient and operation should not be performed.

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## ABSTRACT OF DISCUSSION

DR. JOSEPH HUME, New Orleans: Pathologically it has been known for a long time that occluded tuberculosis exists, but it is only in the last ten years that attention has been drawn to the subject and Dr. Braasch has contributed no small part to the information we have obtained. There is, however, a certain amount of confusion as to the word "occlusion," and in the literature the records are constantly confused as to whether the occlusion is permanent or partial. It is a good plan to speak of complete occlusion when nothing comes down, and of partial occlusion when at one time the kidney will allow a little to seep down and at other times nothing at all. I have had a few cases of what might be termed "intermittent occlusion." The results of this occlusion are very important. Pathologically four general results may be mentioned: first, a large pyonephrosis; second, a very rare condition, a hydronephrosis; third, cystic degeneration of the kidney, and, fourth, atrophy of the kidney. This may be of two types: a large type in which the kidney is very small and surrounded by a large capsule, giving the impression of a large kidney; often there is no kidney tissue at all. These cases can be divided into two great groups: an active group and a silent group. In the active group there is acute pain, cachexia, marked bladder symptoms. The silent type presents many problems. In some cases there are no kidney symptoms at all, or possibly some reflex pain which does not lead us to suspect a kidney lesion. In another group of cases there is some flare-up on one side and there is no ureter on the opposite side or you cannot get up on the opposite side. These cases are of great importance and are very difficult to diagnose. If we cannot find a ureter on either side the probability is that the kidney was destroyed by tuberculosis, or there was no kidney from the start. In many cases the roentgen ray shows no evidence of a kidney at all. What shall we do with these cases? Shall we operate? I think Dr. Braasch is right. Operation should not be advised because in many cases no tubercle bacilli are left. Even if we take out the silent kidney, the disease is apt to flare up in the other, so it is best not to advise operation.

DR. HERMAN L. KRETSCHMER, Chicago: "Autonephrectomy" is the term used by the older authors in these cases. When Zuckerkandl described three clinical cases it was considered a phenomenon. Dr. Braasch has told us that in his series of renal tuberculosis cases 10 per cent. with occlusion of the ureter were found. I had no idea these cases were so frequent, and it raises the question whether we are missing some of them. Very frequently one cannot pass a catheter or the catheter can only be passed up the ureter a very short distance, and one is satisfied to stop at that point with the idea that it is a stricture, and no attempt is made to prove whether we are dealing with occlusion or stricture. In these cases it is well to use indigocarmin. If the dye does not come through it shows that we are dealing with an occluded ureter. I have been on the lookout for tuberculosis in the cases in which I have not been able to do a satisfactory cystoscopy because of local bladder conditions. Perhaps in some of these cases the roentgen ray will reveal the condition pointed out by Dr. Braasch. It seems to me the cases in which the urine is normal are the ones we are likely to miss. I do not remember the figures in regard to the palpable tumor. It ought to be easy when one can demonstrate the presence of the tumor and find it in the kidney region. As has been pointed out, some of these kidneys undergo atrophy. In one of my cases the patient had a large kidney on the right side, which I thought was hypertrophied, and on the other side I found one which I thought was atrophied. Necropsy showed an atrophied right kidney with complete stricture of the ureter and a large hydronephrosis on the other side. I agree with Dr. Hume about the use of the word occlusion. In a recent publication on this subject the author reported a large number of cases of occluded tuberculosis, and yet he says he can catheterize the ureter and get urine from that side. The use of this word should be restricted to those cases in which the occlusion is complete.

DR. H. MCCLURE YOUNG, St. Louis: Dr. Braasch spoke of the possibility of error in diagnosis; that failure to find a ureteral orifice creates a strong probability that it is not there. There is a strong probability, but it is not certain. We should not be contented with a probability when we possess a means of making absolutely certain. If a Gareau catheter is put up on the sound side we can be sure that we collect all the urine that comes down on that side, then a functional test with phenolsulphonephthalein can be made, and we collect the urine entirely through the Gareau catheter. At the end of half an hour if the intravenous method has been employed the Gareau catheter is withdrawn and an ordinary catheter is put into the bladder, and if we find only a trace of the dye in the bladder even after irrigating and collecting the irrigating fluid I think we have an absolute demonstration that the dye is not coming through on the opposite side. I have made it a rule whenever I have suspected an occlusion on one side to make that test even after catheterizing both ureters if there has been leakage. A certain amount of the dye will often be found in the bladder after catheterization of both ureters and you do not know which side it is coming from, but this can always be checked up later by the use of the Gareau catheter.

DR. A. J. CROWELL, Charlotte, N. C.: Dr. Braasch did not state the location of the occlusion in his cases.

DR. HARRY A. FOWLER, Washington, D. C.: A woman in the late thirties had a large tumor in the upper right abdominal quadrant, projecting from under the costal border, presumably a kidney tumor. She gave a long history of calculus, dating back fifteen years, when a stone was removed from the left renal pelvis. This recurred ten years later, and a second stone was removed from the same kidney. Two years later she had a typical attack of right-sided renal colic. Examination showed a small stone in the left pelvis, and a slightly larger one in the right kidney. Despite this she was operated on a few months later for appendicitis and a normal appendix was removed. The symptoms persisted. Two and a half years after this she came under my observation on account of right-

sided pain and the tumor above referred to. Examination showed a small stone in the left pelvis and a larger stone at the right pelvo-ureter juncture, producing complete obstruction of the right ureter. It was impossible to obtain any urine from the right side, therefore the nature of the tumor could not be determined definitely. The bladder urine was clear and free from infection. At operation a very large kidney was removed, and on examination proved to be completely destroyed by multiple tuberculous abscesses. This case represents an unusual type of occluded renal tuberculosis, the occlusion being due to an impacted pelvic stone. It is the only case of a true calculus complicating renal tuberculosis which has come under my observation.

DR. W. F. BRAASCH, Rochester, Minn.: Dr. Crowell's question in regard to the usual location of strictures in the tuberculous ureter is a difficult one to answer in a few words. The strictures, as a rule, are multiple, and may be situated in any portion of the ureter. I am under the impression that the occluding stricture is more often situated near the renal pelvis. If the primary stricture is situated in the lower portion of the ureter, it depends on whether the stricture is partial or complete as to what the result may be. If it is partial, hydronephrosis and hydro-ureter may result. Occluded renal tuberculosis occurs more frequently than is generally recognized. I might have divided these cases into two groups, namely: silent tuberculous kidneys and those of more recent origin.

## STANDARDIZED VS. UNSTANDARDIZED SPLINTS OF THE AMERICAN ARMY *

H. R. ALLEN, M.D.
INDIANAPOLIS

At our last session in Atlantic City it was suggested in open meeting that the standardized splints of the army be placed in all medical schools and in hospitals for teaching and treating purposes. Among the most ardent advocates of this idea were the men who did the standardizing. The splints they selected for standardization were chiefly of British origin, with an occasional continental digression in the form of a bulky Balkan frame or a domestic selection of devices from a very limited geographic area of the United States, referred to as "America's contribution."

Then and now I resent their selection of both foreign and so-called American splints, as I believe none of them are as good as the best this country affords. We are now asked to endorse the selection and clinch the endorsement by forcing this selection of splints into all of our hospitals and medical schools. A good splint does not require forcing. It will automatically find its proper place.

Before submitting for comparison the most important of the standardized and unstandardized splints, it is only fair to say that there may be many better splints than the few I shall exhibit.

### THOMAS LEG SPLINT

Since the Thomas splint for the lower extremity appears to outshine all others in the standardized group, and since its various parts keep popping up in splints for other parts of the body, it may be well to compare it and its various parts with at least one of the unstandardized splints. For convenience, this one splint will be referred to as the Allen splint.

These two splints may be compared, first by their lower or foot ends, secondly by their vertical rods, and lastly by their top ends. Figure 1 shows that the foot ends are just about as different as they can be. The Thomas humps up in the middle toward the sole of the foot, while the other bends down away from it. To the top of the upturned loop in the Thomas the traction bandages are tied. This being a central point, it causes these bandages to compress the foot in a very unpleasant way. In order to obviate this lateral pressure, we are advised to pass the traction bandages out around the steel rods and then tie them to the upturned loop. This obviously would strip the adhesive plasters away from the sides of the leg unless an annular band was put around the ankle. Any one can see that outward lateral traction will flatten the annular bandage in front against the ankle and behind against the Achilles tendon. It would be better to let it compress the foot.

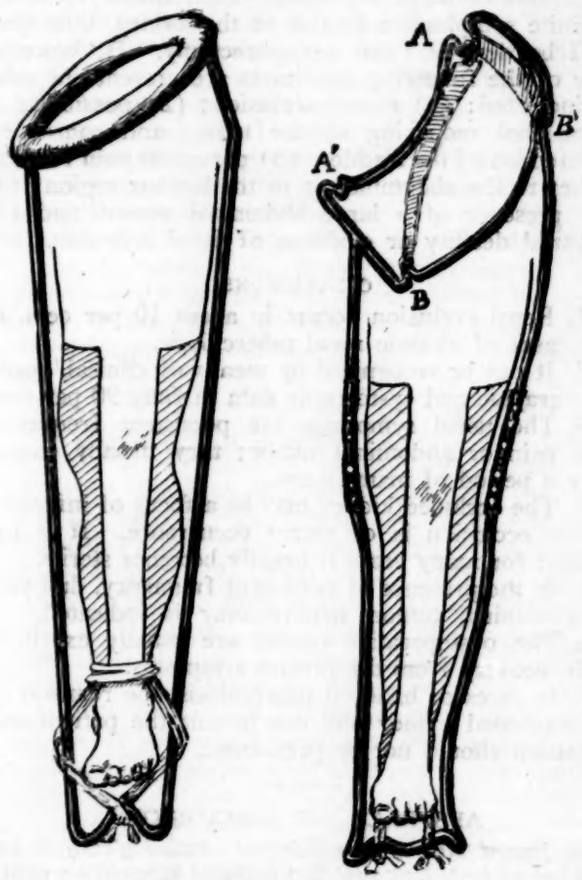


Fig. 1.—In order to provide a splint appropriate in length for the patient who has to wear it, the Allen splint has a steel tube elongation attached to the steel bar on each side, just above the level of the knee, into which the upper portion of the splint slides down. This tube has a series of adjustment holes, through which shortened nails may be passed in order to hold the upper portion of the splint at any desired height, thereby regulating the length of the splint. The round steel ring of the Thomas splint must be made the right size and reshaped to fit different patients, while the Allen splint, with its flexible sling, makes its own adjustment to fit.

There is another amusing bit of construction about this foot part. The top of the upturned loop is just about an inch and a half above the extreme bottom of the splint, so that when the foot is drawn well down and the splint is fitting the very best it can, it is still an inch and a half too long for any patient who has to wear it.

In the Allen splint, the traction bandages run directly down from the adhesive plasters on the sides of the leg to their attachment at the laterally placed loops. This construction makes lateral compression of the foot impossible. The Thomas could have had this and

* Read before the Section on Orthopedic Surgery at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

other advantages had it only been designed backward and just reversed from the way it is designed.

Our second comparison is that of the steel rods that connect the bottom with the top. The rods in the Thomas are two straight diverging lines from bottom to top, excepting for one slight angular bend over the greater trochanter. The Thomas could have conformed to the natural lines of the body, had it so been designed. The advantages of following these natural lines were clearly brought out and published during the war, in the *Military Surgeon*.

Our last comparison of the two splints exposes the weakest hope for the Thomas construction. Like the mountain ash, it dies at the top. Since there is no possible section through the human hip that resembles a circle or a bilaterally symmetrical modified circle, we may look on a splint thus terminating with more or less suspicion. A substantial misfit appears to be a logical conclusion if we try to make a bilaterally symmetrical steel ring, all nicely padded, fit a hip whose front and rear, inside and outside have no anatomic or morphologic resemblance. If it fits in front it cannot fit behind, nor can it fit when the foot is elevated if it fits when the foot is down on the bed. This brings us face to face with the important question as to where the padded ring makes its pressure against the pelvis.

We are told that the Thomas splint rests against the tuberosity of the ischium. As nature intended that part for a resting place, we may as well agree that it would be a very appropriate place for a Thomas splint to rest; but instead of resting there, it really rests against the horizontal ramus, an area far too sensitive to endure any prolonged pressure (Figs. 1, 2 and 3).

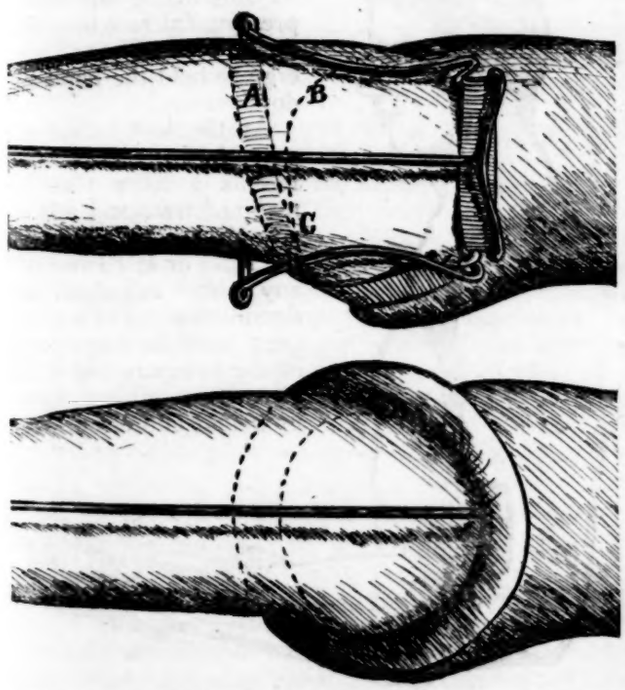


Fig. 2.—The angle *ACB* shows an open space between the ischial sling and the patient, which angle can be increased sufficiently to make painful pressure or even contact with skin impossible. Putting a Thomas splint on one leg and an Allen splint on the other settles at once and for all time the difference in comfort and prolonged use. Without actual experience with the two splints, opinions of relative merit can be merely theoretical

You will doubtless recall a very elementary lesson in geometry informing us that a straight line lying in the same plane with a circle would touch the circle at two points when it traversed the circle, but it could touch at only one point if it did not lie in the same plane. The line of the horizontal ramus does not lie in the plane of the padded circle. Therefore, we are concerned with only one point of pressure, and we shall find that point not at the ischial end of the line of the ramus but away over toward the pubic end, where things are most sensitive. You will be instantly informed as to the exact resting place by putting the splint on your own leg or, better still, slip the padded ring over a patient's foot and slide it up over the knee and adductor muscles and then watch it find itself, with the internal part of the ring resting against the ramus just external to the pubis. Then tighten up the splint and elevate the foot. It will not be necessary to ask where it hurts, as the patient will promptly furnish that bit of instructive information. In case there is any doubt as to just where the tuberosity of the ischium is, it can easily be found well inside the padded ring. The pictures of the pelvis account for my referring to its most dependent portion as the horizontal ramus. They also clear up any doubt as to where the padded ring can and cannot rest.

Fig. 3.—If the Thomas splint is especially fitted for each individual patient, it remains both painful and insanitary, as it causes more or less blocking of the anal outlet. In case the foot is elevated from the bed, the padded ring cannot rest against the ischium. So a weight and pulley are sometimes used to lessen the unbearable pressure near the pubis. This, of course, defeats the purpose of the padded ring for ischial pressure as the splint is pulled away from all pelvic bearing. Furthermore, the constant force of gravity is substituted for fixation energy—which is a questionable substitution.

It would be unfair to the wounded soldiers of future wars to pass unnoticed what is shown in Figure 3. It will be observed that the steel rod that runs up between the thighs joins the steel ring at a point almost directly opposite the anal outlet. With this construction, more or less blocking of the anal outlet is unfortunately necessary. The disagreeable, time-consuming aspect of this presents a picture most objectionable to contemplate.

By a totally different design and construction, based on a different selection of mechanical principles, the objectionable and painful elements of the Thomas splint can be eliminated without in any way dodging its basic intent and purpose.

The Allen splint depends on no padded steel ring, but uses instead a padded, flexible, inelastic ischial sling, which, like the belly band of an army harness, adapts itself automatically to the shape of the animal that wears it. This sling is not a loose loop, but is a short, curved, sharply inclined plane as indicated at the right in Figure 1. After this sling passes down behind the gluteal region, it bears against the posterior and inferior zone of the ischium. From here it makes a straight departure, forming the angle *A C B* (Fig. 2), which can be widened out to accommodate any reasonable amount of foot elevation, without pressure against the inclined plane, which slants away from the horizontal ramus. The sling does not follow the ramus

around as the ring is compelled to do, as shown in the lower part of Figure 2.

In order to change the splint for right or left sides, it is only necessary to slide the high end of the ischial sling down at one end and the low end up at the other. The ends of the sling are equipped with double-linked swivel rings that slide up or down the steel rods to their retention seats. *A* slides to *A'* (Fig. 1), while *B* slides to *B'*, resulting in line *AB* or *A'B'*. The top sling does not have to be changed, as it merely serves to keep the metal from touching the skin.

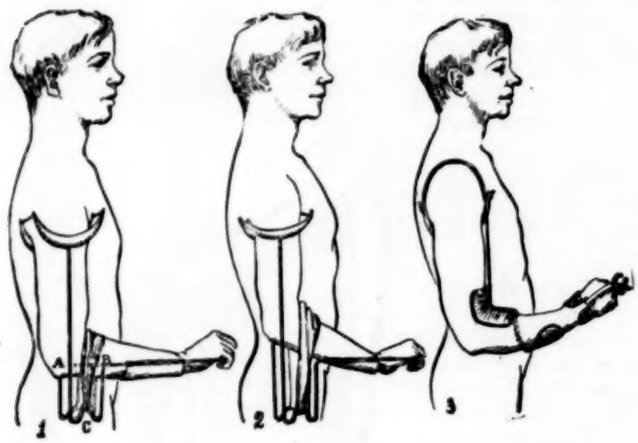

Fig. 4.—1. A patient the right size for the standardized humerus splint. 2. A patient whose arm is not long enough for the splint. Both splints represent the unnecessary bulkiness at the elbow. As much traction can be made from line *AB* as can be made from point *C*, several inches below line *AB*. 3. Allen splint for both humerus and forearm. The details of this splint are better shown in Figure 5.

A patient can endure much longer and much more pressure against a padded sling than against a padded, round steel rod.

Had the Thomas splint a better top and bottom and more shapely rods connecting them, we might understand its popularity; but to force it into our hospitals and medical schools with all its incongruities and violations would be merely an abrupt way to warp all our modern mechanical ideas downward and backward beyond all hope of progress.

### FRACTURE SPLINTS FOR UPPER EXTREMITY

In Figure 4 will be seen what at first sight appears to be a badly bent up Thomas leg splint. It is in reality the fracture splint for the humerus, and betrays the deep seated Thomas influence on the standardization committee. It is intended for right or left side. Figure 4-1 shows it fitting perfectly on a man who happens to be just the right size for it. It is double crutched at the top. One crutch is on duty under the axilla, while the other stands at inattention clear outside the deltoid. At the shoulder it is entirely too bulky for an army overcoat to be drawn over; but that should not concern us, since no garment ever could pass the elbow construction, with its double set of dropped, parallel steel bars and their upturned Thomas loops for traction bandages. Why these bars went only 6 or 8 inches below the elbow instead of to line *AB* is an open question, because as much traction can be made from line *AB* as can be made from a point 6 or 8 inches below it. Figure 4-2 shows a short-armed man trying to wear the standardized splint.

Figures 4-3 and 5 show what can be done with a little less than half as much steel rod. For more than twenty-five years this modification of my original splint has been most successful. It takes care of fractures not only of the arm but also of the forearm, and can be applied in about the time it takes to light a cigaret. It also works on either side and can be worn under or over the nightshirt or over the big army overcoat, and it fits any man in the army. Instead of using the "clove hitch," it makes its traction by means of a handcuff so constructed that the blood vessels in front and behind are arched over and are not subjected to any compression. The best way to compare this form of traction is to put a handcuff device on one hand and the clove hitch on the other, tie them together, and then pull the hands away from each other. The traction will be equal for the two hands; but one will turn blue and swell up while the other will remain about normal. This splint was also ignored by the standardization committee, although it appears to have some merit.

### SIR ROBERT JONES' COCKUP SPLINTS

Figure 6 represents, at the top, a variety of Jones cockup splints, at the bottom the Allen splint. I refer to the variety of Jones cockup splints because they are made for right and left hands, also right or left, without and with thumb rests. Apparently they are all for one purpose, so far as holding the hand in dorsiflexion is concerned. That is an important position unless the flexor tendons are cut, and then just the opposite position is absolutely essential. Along with a description of surgical technic we are more than once warned not to apply any pressure on parts that have been operated on, and yet every one of the splints shown is a three point lever device with its constricting and compressing fulcrum bearing down with sufficient energy to hold the hand in dorsiflexion.

At the lower central part of Figure 6, *X* represents a splint that is made of wire and adhesive plaster. It will hold the right or left hand of any soldier in palmar or dorsiflexion without even touching any part of the forearm, and it is also self-retaining, light in weight and clean.

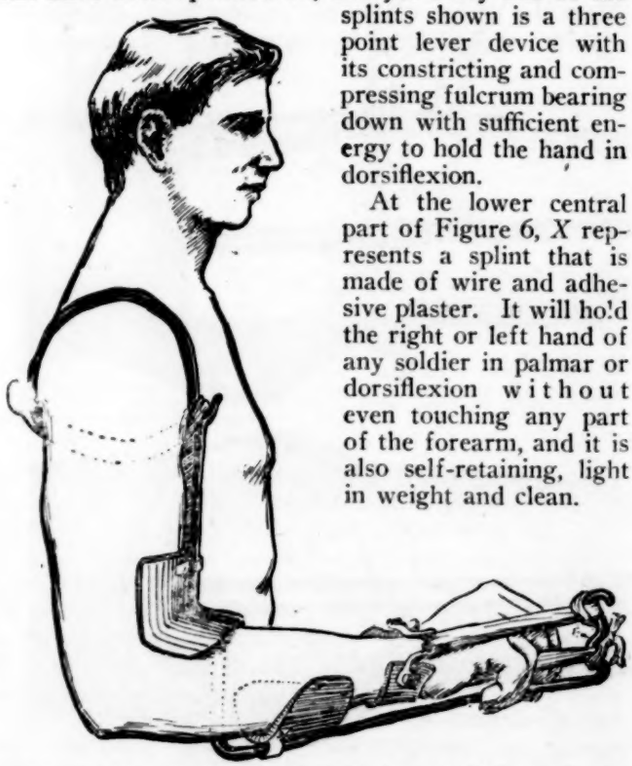

Fig. 5.—This splint, with its nonconstricting wrist bearing, takes care of fractures of the arm and forearm for either side of the body, and fits any soldier in the army, under or over his clothing.

### THE SHOULDER SPLINT

Among the standardized group of army splints there is one fairly ponderous device intended to hold a shoulder joint in a fixed position of anterior abduction and internal rotation. There are too many moving parts and links in the chain hoist to interest an ama-

teur artist, so I made no sketch of it. However, the U. S. government has pictures of it and they can be seen in the standardized group.

Figure 7 represents a front and side view of a splint that a man can wear while asleep or while awake. It

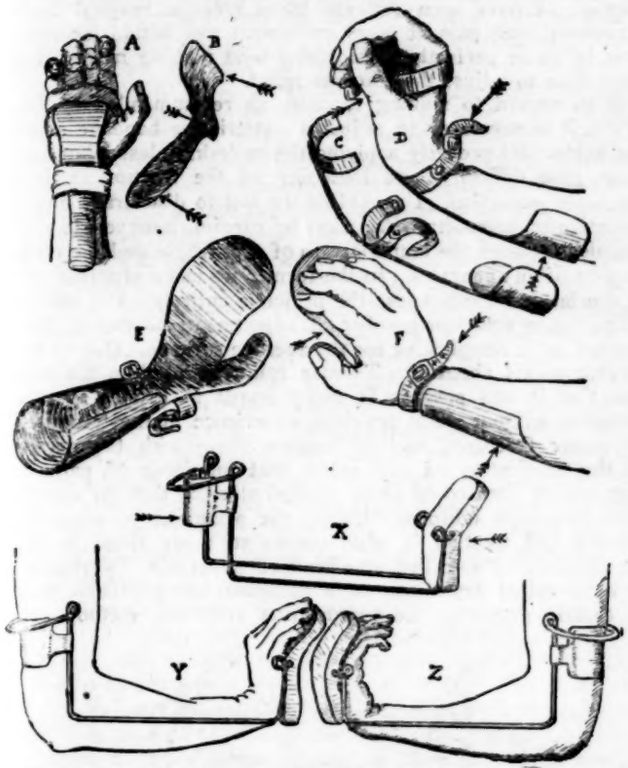


Fig. 6.—At *X* is shown a self-retaining splint to hold either hand in palmar or dorsal flexion without pressure on any part of the forearm. It will fit any soldier. The palmar surface can be padded up to relieve any degree of pressure against the thenar eminence.

is made of wire and adhesive plaster. It is very light and yet sufficiently rigid.

In the museum of modern war injuries and their surgical treatment, at Fort Oglethorpe, Ga., there were two of these splints. Copies of them were frequently made and taken abroad by the best surgeons in this country. Any time you would go into the museum you would see some interested surgeon wearing one or both of them. This splint can be worn over or under the clothing, and as no one ever bent the wires, it must have been a comfortable fit. The exact position of the arm and forearm can be instantly and permanently secured by bending the wires to meet the exact requirements of each case.

### FRACTURES OF THE JAW

Concerning fractures of the lower jaw, we orthopedic men have no laurels to keep fresh and green. Who it was that scared us clear out of this field, I know not. I do know that there is no standardized splint, unless the dentists put one across. Figure 8 represents a reliable lever type of splint that dentists borrow now and then for their dental meetings. It also is made of wire and adhesive plaster, and the dentists tell me that it actually holds a broken jaw both forward and upward and is very comfortable to wear. It can be used as a temporary splint until the dentist comes to our rescue or we can go on without him.

### THE STRETCHER

The Thomas spinal splint and its various modifications for pelvic injuries resemble bifurcated undertakers' baskets, with the additional possibility of abducting one lower extremity, if used for pelvic injury. Illustrations of these monovalve cradles are unnecessary. They were not used once in a thousand cases, and anything holding that record is admittedly useless. As a complete substitute, the new army hand litter or stretcher does all and more than can be done by any possible modification of the Thomas spinal splint. The stretchers were standardized during the war, and a tremendous number of them ordered not by the medical department but by the ordnance department, although they were published in the *Military Surgeon* and republished in foreign languages (Fig. 9). There exists today no one device that serves so many commendable purposes. It serves as a portable bed, a splint for many parts of the body and as an operating table, and with the addition of a back rest it becomes a most comfortable reclining chair. It has a 7-inch hole cut in the canvas for elimination purposes and a rectangular hole in the tread of each stirrup for the reception of sticks which, according to their length, serve as table legs for any desired height of table or bed.

Equipped as it is in Figure 9, with its transverse rods for traction or fixation attachment and its traveling, swinging cranes it is more complete than any standardized Balkan frame and hospital bed combination. This stretcher is a self-contained, compact unit, completely eliminating any and every excuse for the existence of a Balkan frame for any purpose. A patient can have one or all extremities elevated; also he can reach up and lift his own weight or change his position by catching hold of the swinging, traveling cranes. He can remain on his stretcher from the time of his injury until he is discharged from the hospital, without submitting to the many painful changes from bed to operating table. He can be taken out into the sunshine or into the treatment room without having to be first untied from a Balkan frame. He can be

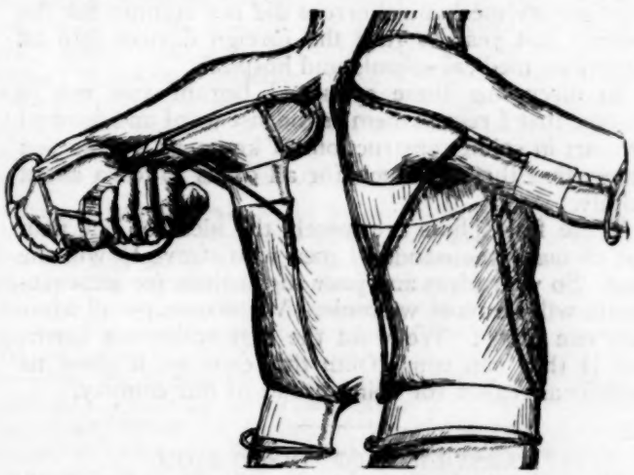

Fig. 7.—Front and side views of the shoulder splint. It is made of wire and adhesive plaster, and can be bent to hold the humerus and forearm in any desired position. It is light, and all injured parts are exposed for treatment.

roentgenographed right through the stretcher without being disturbed. All of his Carrel-Dakin and other paraphernalia are attached to this complete portable unit. In case wounds on the back require treatment, holes can be cut through the bedding and canvas; and in order to make treatment still more convenient, longer sticks will elevate the bed to a desired height, so that every part is easily accessible.

There are, in addition to the many surgical and hospital advantages, certain strategical advantages in the battle field. A hospital protected from direct fire can be as far forward as any fighting man, even if the

Fig. 8.—Outside lever splint for fractures of the lower jaw. It holds the jaw upward and forward, and dentists assure us that it is both comfortable and effective.

mud and water are deep, because the patients are up high and dry and can stay there until favorable time for moving them back. Furthermore, a patient will receive better treatment if he is up where he can be worked with than he will if his attendant has to kneel in slush and ice water or sit in a soft, warm mud.

In holding the standardized splints up to the light of comparison, let us hope that the abundant evidence of unnecessary mechanical errors did not account for the anxiety last year to rush the foreign devices into all American medical schools and hospitals.

In discussing these splints, I beg of you not to assume that I regard them as the last word and finished product in splint construction. I know, as well as you know, that there is much for all of us to learn about splints.

These few splints are merely the ideas of one man out of many thousands of men who strove to win the war. So your ideas and your suggestions for improvements will be most welcome. We are really all after just one thing: We want the best splints on earth; and if they can come from this country, it gives us additional reason for being proud of our country.

## ABSTRACT OF DISCUSSION

DR. H. WINNETT ORR, Lincoln, Neb.: For the first two and one-half years of the war the British had many men who were enthusiastic in the use of splints, but in the third year of the war, because of the bad results secured in the treatment of fractures of the femur, an investigating committee was appointed to collect statistics as to the final results in treatment of injured femurs. The results were so bad that improvements were inaugurated to the end that the results obtained afterward were very much better. This meant simply the adoption of a standardized method in the use of the Thomas splint. Many of us have seen the Thomas splint applied in hundreds of cases of all kinds of fractures of the femur with almost uniformly beneficent results.

Dr. Allen's claim with regard to his own splint is open to criticism. He has simply changed a few angles of the Thomas splint, and I think his splint is not as good as the Thomas splint. In the matter of applying the Thomas splint, Dr. Allen's statement as to pressure on the perineum is erroneous. He does not know how to apply the splint or that would not happen. I have seen patients taken from a hospital train screaming with pain at every movement and within ten minutes be made perfectly comfortable with nothing more being done than to adjust the Thomas splint.

With regard to making traction, as recommended by Dr. Allen, it is necessary to adjust a constricting bandage about the ankle. By properly applying the moleskin plaster but few cases give difficulty, and loosening of the traction is very much the exception. I should be the last to discourage either initiative or ingenuity. We must be careful, however, to distinguish between the amplification of a principle and the elaboration of an apparatus. In the former we make progress, but in the latter we often lose the principle entirely. Dr. Allen's splint has a sufficient number of adjustments so that it does become more complicated for the average surgeon. One of the biggest points about the Thomas splint as used in the war was that it was possible in many wards in France to take surgeons without much previous experience in the treatment of femur fractures, and so impress them with the details of the application of this splint that hundreds of patients over a wide area could all be treated alike so that the results were relatively uniform. Losing the principles of adequate traction and fixation is what occurs so many times in the modification of so-called standardized apparatus. Variations of or so-called improvements in apparatus are justifiable only on certain grounds. Standardization simplifies methods of

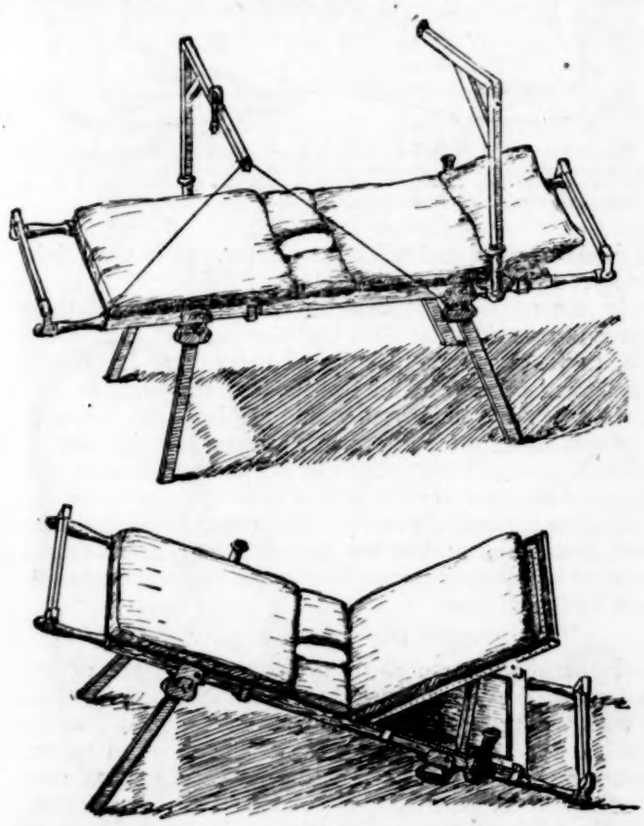

Fig. 9.—Above, swinging, traveling cranes ready to fulfil all the duties possible to a massive Balkan frame. This stretcher is a self-contained, complete unit to which all Carrel-Dakin and other paraphernalia can be attached. The patient can remain on this stretcher from the time of receiving his injuries until dismissed from the hospital without experiencing the usual pain from being lifted out of bed for operating or roentgen-ray table or other treatment. Below, stretcher and back rest combination, resulting in a most comfortable reclining chair.

teaching, popularizes methods that have been shown to be applicable, and contributes most of all to uniformly better results than those to which we have become accustomed.

DR. FRANK R. OBER, Boston: In France I worked with Dr. R. B. Osgood, a member of the army splint committee. In our hospital we treated between 46,000 and 47,000 casualties. We found that the only Thomas leg splints causing discomfort were those with large rings. The splint with a properly fitting ring will fit closely the tuberosity of the ischium, will not slip into the anus or impinge on the side of the thigh and will give no discomfort. In criticizing the diagram shown one sees that the splint is not of sufficient length below the foot; constricting bands to hold traction straps at the malleoli are not necessary. The two straps shown in Dr. Allen's splint and secured separately always impinge on the malleoli and cause pressure sores. This method of fastening consumes a great deal more time in maintaining the traction because the straps have to be untied and refastened daily. When the two straps are secured by one knot, a nail may be inserted between the straps so that by one or two daily twists any amount of traction may be had. It is not necessary to bend the splint to conform to the outline of the leg. In a way, this is a disadvantage, because it is very much more difficult to dress wounds when close fitting splints are used. A Thomas splint can be applied by any one with very little training. Every ambulance was equipped with them and the transportation of wounded was remarkably facilitated by their use. Our patients always came in after a long trip, often being on one stretcher for many hours, in the greatest degree of comfort. I believe that the Thomas splint has come to stay. We have used it for years in orthopedic hospitals for treatment of tuberculosis of knee joints.

DR. R. W. BILLINGTON, Nashville: It is not to be supposed that the Thomas splint needs much defense before this association of surgeons. It was the most useful splint for the purposes for which it was used in war injuries that we had. It was not perfect for some cases, but the standardized model was adapted so that its purposes might be varied without having to have special splints for all these special cases. The principles applying in emergency work do not apply in civil practice. In civil work we do not have to adopt this standardized splint. It is not a true Thomas splint. This ring is not the true Thomas ring, which is not circular in the original Thomas splint. It is not placed at right angles to the *transverse plane* of the sidebars. It is tilted downward behind and is flattened in front; three fifths of the circumference of this ring is behind the uprights, two fifths being in front, and that throws the uprights in front of the center of the thigh. The weight is carried behind and the lowest point of the ring is below the tuberosity of the ischium. It forms a perfect saddle and is absolutely comfortable. That is possible in civil practice, but it was not feasible in the emergency of military practice. The army splint was a transportation splint and was designed for that purpose, and it was used chiefly for that purpose. It reduced the mortality from fracture of the femur from 75 to 25 per cent. Any apparatus that has done that much should not be said to be absolutely useless.

DR. EDWIN W. RYERSON, Chicago: I think Dr. Allen is led astray by the fact that the Thomas splint as used in our army is not an ambulatory splint. It was not designed to be used in walking. No man could walk about comfortably in the Thomas army splint, and it is not intended that he should walk. Moreover, Dr. Allen has been led astray in regard to the length of the splint, because, as we used it in the army, it should be long. As we used it, it was most efficient, and Dr. Allen would not condemn it for such use. The splint for the elbow designed by Dr. Allen seems to be extremely useful. I think it is better for hospital use than the one we employed in the army. The cock-up splint for the elbow does not impress me so much; in fact, I think it is absolutely worthless. An ordinary flat metal or wire apparatus, such as we have been using, is much less cumbersome than this splint, and is just as effective.

DR. JOHN D. RIDLON, Chicago: Dr. Ryerson should amend his remarks. I do not think Dr. Allen was *led* astray. I think he *went* astray.

DR. C. L. STOREY, Detroit: Out of the great war came the use of the pylon or pegleg. The pylon is a plaster bucket fitting over the stump with side bars running down and with a wooden block for a foot which made a pegleg for the patient to walk on shortly after amputation. I have made many of these peglegs and have seen others make them, and I have seen many failures to properly construct them. On investigating the cause of these failures we found that they are due to this: In putting the plaster bucket on the stump, when it came to the point where the bearing was either on the perineum or in between the ischium and the shaft of the femur the plaster was not drawn in at the bearing point, and it had exactly the same effect as a large ring in a poorly applied Thomas splint. In regard to treatment of fractures of the femur, I have seen men in the army who have always had trouble with the Thomas splint. On investigation we usually found that they were using a splint with too large a ring, and the leather pad part did not come between the shaft of the femur and the tuberosity of the ischium and was bearing on the ramus, causing discomfort. The Thomas splint, even with a large ring, can with counter weights, be applied in such a way that it will have a proper bearing point, if impossible to get a Thomas splint with the proper sized ring.

DR. HORACE R. ALLEN, Indianapolis: There were two distinct subjects in my paper for discussion: One was a comparison of splints and the other was whether American medical schools and hospitals were to have the standardized splints of the army injected into them. I think the discussers have been fair considering the fact that in the army they were familiar with the standardized splints only and had absolutely no experience with or knowledge of the other splints. They all agree that the Thomas splints must be the exact size and shape for each patient. The necessary time to select and alter these splints to size and shape would seem to detract from their use as emergency devices. The Allen splint requires no more adjustment nor sizing than the belly band of an army harness, which automatically and instantly fits any army horse comfortably. By putting a Thomas splint on one leg and an Allen splint on the other you will at once appreciate the difference and you will never again advocate a Thomas splint, especially if the foot is to be elevated. By comparing other groups of splints with the two groups presented, we can broaden our experience and ability to select splints. However, if in this one hour we have seen enough to convince ourselves of the wjsdom of not forcing the standardized splints of the army into all of the medical schools and hospitals of America we can regard the time as well spent.

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**Danger in Using Army Gas Masks in Mines.**—George S. Rice, of the U. S. Bureau of Mines, has called attention to the fact that gas masks have serious limitations and in no case should they be used in underground workings for the reason that there may be an insufficient amount of oxygen (the gas mask does not supply oxygen), or there may be present carbon monoxid, which the Army mask will not remove. Some carbon monoxid is always produced by a mine fire or coal-mine explosion, or by a blast of dynamite or other explosive. While the Bureau of Mines developed a mask which may take care of a small percentage of carbon monoxid, that is, 1 per cent. or less, in mine fires and after explosions there frequently is a much larger percentage of carbon monoxid in the mine atmosphere. Such masks are for use in industrial surface plants, as for example, on the top of a blast furnace or around gas producers in the open air. A mask is not of the slightest help when there is a deficiency of oxygen, and this deficiency is always present in the immediate vicinity of a mine fire, usually accompanied by the presence of both carbon dioxid and carbon monoxid. If a man enters a mine whose atmosphere contains less than 8 or 10 per cent. of oxygen, he is likely to collapse without the slightest premonition. The self-contained oxygen breathing apparatus is the only reliable safeguard in an irrespirable mine atmosphere.

# LATE RESULTS IN TREATMENT OF GUNSHOT FRACTURES OF THE MANDIBLE

## WITH SPECIAL REFERENCE TO VARIOUS METHODS OF BONE GRAFTING *

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This paper is based on data furnished by the Office of the Surgeon-General and by personal communications from officers in charge of maxillofacial cases at the different army hospitals designated for the treatment of such injuries on return of the wounded to the United States. It is an attempt to give a combined survey of the end-results of the various methods of bone grafting employed for the cure of nonunion with loss of substance following gunshot fracture of the mandible in the American Expeditionary Forces.

It is impossible at present to state accurately the number of gunshot fractures of the jaw bones occurring in the American Expeditionary Forces, but it is possible to reach an approximate estimate. We know that fractures of the jaws constituted about two-thirds per cent. of all gunshot wounds in the late war. The total number of wounded in the American Expeditionary Forces was about 225,000. Two-thirds per cent. of this yields 1,500 gunshot fractures of the jaw bones.

In about three fourths of these cases the mandible is involved, while in one fourth the maxilla is affected. So that, assuming a total of 1,500, 1,125 would be fractures of the mandible and 375 of the maxilla.

We have fairly accurate records that in the neighborhood of 600 patients with gunshot fracture of the jaw bones required further hospital treatment after return to the United States. The great majority of these patients were treated in certain hospitals where special personnel and equipment were provided for the carse of maxillofacial injuries. The hospitals and surgeons in charge of this work were: U. S. Army General Hospital No. 2, Fort McHenry, Md., Lieut-Col. George C. Schaeffer; U. S. Army General Hospital No. 11, Cape May, N. J., Major George M. Dorrance; Walter Reed General Hospital, Takoma Park, D. C., Lieut.-Col. Robert H. Ivy, and later Lieut.-Col. Jay D. Whitham; U. S. Army General Hospital No. 40, St. Louis, Lieut.-Col. V. P. Blair and Major Frank J. Tainter. Later the Post Hospital at Jefferson Barracks, Mo., replaced General Hospital No. 40; and Post Hospital, Columbus Barracks, Ohio, replaced General Hospital No. 2. At present the cases still remaining under army treatment are at Walter Reed General Hospital, Jefferson Barracks and Columbus Barracks.

TABLE 1.—SITES OF FRACTURE IN FOUR HUNDRED AND FORTY-FIVE MANDIBULAR CASES

| | Number | Per Cent. |
|---|---|---|
| Body | 230 | 51.7 |
| Symphysis | 76 | 17 |
| Angle | 53 | 12 |
| Ascending ramus | 31 | 7 |
| Alveolar process alone | 14 | 3.1 |
| Condyle or coronoid | 7 | 1.8 |
| Multiple | 34 | 7.6 |
| Total | 445 | |

Of the 600 cases of gunshot fracture of the jaw bones requiring hospital treatment after return to the United States, 445 involved the mandible and 155 the maxilla. In thirty-six cases both upper and lower jaws were involved.

Of 445 cases of gunshot fracture of the mandible retained in U. S. Army hospitals for treatment 322, or 89 per cent., of the American Expeditionary Forces total secured bony union without bone graft, leaving 123, or 11 per cent., of the total resulting in nonunion or vicious union, and requiring bone graft. In two of these cases of nonunion the patients refused operation.

TABLE 2.—FRACTURES OF JAW BONES IN AMERICAN EXPEDITIONARY FORCES

| | | |
|---|---|---|
| Total gunshot fractures of jaw bones in A. E. F. (estimated) | | 1,500 |
| Maxilla | 375 | |
| Mandible | 1,125 | |
| Total gunshot fractures of jaw bones requiring care in U. S. | | 600 |
| Maxilla | 155 | |
| Mandible | 445 | |
| Total mandibular fractures securing bony union without graft | | 322, or 89% of A. E. F. total. |
| Total cases of nonunion or vicious union requiring grafts | | 123, or 11% of A. E. F. total. |
| Total number of bone grafts to date | | 103 |

Up to the present date, 103 bone grafts have been made or have come under observation at the hospitals named. Cases of vicious union with such loss of substance as to require bone grafting were comparatively few, probably not more than twelve in all. This was because most of the cases received early and constant attention in the form of reduction and fixation with respect to proper occlusal relationship of the upper and lower teeth. In other words, collapse of the fragments to close the space due to loss of substance was not permitted, a nonunion with good occlusion being regarded as a lesser and more easily corrected evil than firm union in bad position. The almost universal preservation of good occlusal relationship in these cases, and the exceptionally large percentage of good functional results in cases cured without bone grafting are principally due to the efficient and painstaking work of the dental officers.

### METHODS AND RESULTS

The methods of bone grafting employed will not be described in detail. The technic is given in the various references mentioned.

The results with the different methods employed are recorded as successful, partially successful, and failures. By a successful result is meant complete restoration of continuity of the bone. By a partial success is meant union of the graft at one end only, in which a further, supplementary operation was necessary. By failure is meant loss of the graft from suppuration or absorption.

1. *Pedicled Graft from the Mandible Itself.*—This method was first described by Cole,[1] and has also been the subject of a paper by Tainter.[2] Here a piece of the lower border of the anterior fragment is removed, with a pedicle of digastric muscle and fascia attached to it below for nourishment. This is carried back to fill the gap and fastened to the ends of the fragments by

* Read before the Section on Stomatology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Cole, P. P.: Brit. J. Surg. 6: 57 (July) 1918.
2. Tainter, F. J.: United Fractures of the Mandible Treated by Bone Graft, J. A. M. A. 73: 1271 (Oct. 25) 1919.

means of silver wire. This form of graft is satisfactory in cases of loss of substances up to 3 cm. in the body or symphysis of the mandible. It is not applicable when the ramus is involved. It has the advantage of furnishing a piece of bone that has not been cut off from its blood supply, and is therefore not so vulnerable to infection as the free graft.

This form of graft showed the best results on the whole, namely, thirty-one cases, twenty-seven successes, three partial successes and one failure (successes, 87 per cent.). It must be remembered, however, that this method was used principally in cases of comparatively small loss of substance, in which the ramus was not involved. It is my experience that regeneration does not occur nearly as readily in the region of the ramus as in the body and symphysis.

2. *Osteoperiosteal Method.*—This graft [3] consists of a thin shaving of bone from the surface of the tibia together with the overlying periosteum, which is laid in two or more pieces between and in contact with the ends of the fragments. It is suitable for loss of substance of any extent, and in any position, and the technic is simple. Thirty-eight patients were operated on by this method, with twenty-seven successes (71 per cent.), three partial successes and eight failures.

3. *Free Graft from Crest of Ilium.*—This has been the method of choice of Gillies and his associates at Queen's Hospital, Sidcup, England, and I have already described it.[4] The graft consists of a piece of bone, the full thickness of the crest of the ilium, beginning at the anterior superior spine. It is adapted either to a small or a comparatively large loss of substance. It is especially suitable in cases in which immediate rigidity is desired, namely, when too much dependence cannot be placed on splints for fixation, and also for an immediate cosmetic result when the loss of substance has produced much visible deformity.

Only seven grafts have been made from the crest of the ilium, five, or 71 per cent., being successful, one partially successful, and one lost from suppuration. The series is too small to form a basis for comparison.

TABLE 3.—TYPES OF GRAFT AND RESULTS

| Type of Graft | Successful | Partially Successful | Failures | Doubtful | Total |
|---|---|---|---|---|---|
| 1. Pedicled graft from mandible. | 27 ( 87%) | 3 | 1 | — | 31 |
| 2. Osteoperiosteal from tibia..... | 27 ( 71%) | 3 | 8 | — | 38 |
| 3. Crest of ilium.. | 5 ( 71%) | 1 | 1 | — | 7 |
| 4. Cortex of tibia. | 11 ( 65%) | 1 | 2 | 3 | 17 |
| 5. Rib ..... | 6 (100%) | — | — | — | 6 |
| 6. Ramus sliding.. | 2 | — | 1 | — | 3 |
| 7. Ox-bone ..... | — | — | 1 | — | 1 |
| Total ..... | 78 ( 76%) | 8 (7.7%) | 15(13.5%) | 3 | 103 |

4. *Free Cortical Graft from Tibia.*—In this method the technic of Albee was generally followed. Of a total of seventeen cases, eleven, or 65 per cent., were successfuly, one was partially successful, two were failures, and in three the result is still in doubt owing to the short time that has elapsed since the operation.

5. *Free Rib Graft.*—Only six patients were operated on by this method, all being successful. This series is too small, however, to form a basis of comparison with other methods.

6. *Ramus Sliding Graft.*—I am unfamiliar with the technic of this method, but assume that it is a modified pedicled graft in cases of involvement of the ascending ramus. Of three cases treated in this way, two were successful and one a failure.

7. *Free Ox-Bone Graft.*—One case in which this operation had been performed at another hospital came under observation at the Walter Reed General Hospital several months later. There was nonunion at one end, and evidence that absorption was going on in the transplanted bone. It would appear from recent experience that there is little use for anything but an autogenous graft.

Of a total of 103 graft operations, seventy-eight, or 76 per cent., are recorded as entirely successful. Partial success was attained in eight, or 7.7 per cent.; in three the result is still doubtful, while the failures numbered fourteen, or 13.5 per cent.

Comparative figures of the three methods most commonly employed are distinctly in favor of the pedicled graft with 87 per cent. successes, as against 71 per cent. for the osteoperiosteal method, and 65 per cent. for the cortical tibial graft. However, elimination of cases of the two latter types, in which a pedicled graft would not have been indicated, might materially change these deductions.

3. Delagenière: Bull. et mém. Soc. chir. de Paris, May, 1916; Lébédinsky and Virenque: Prothèse et chirurgie cranio-maxillo-faciale, Paris, 1918.

4. Ivy, R. H.: Ann. Surg. 71: 363 (March) 1920.

## MANY ORTHOPEDIC DEFORMITIES DUE TO CALCIUM DEFICIENCY

### A DIRECT RESULT OF STERILIZED AND PASTEURIZED FOOD *

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Calcium is an essential part of the human economy. Approximately it constitutes 50 per cent. of the inorganic matter of bone, and is also an important part of the structures in ligaments, muscles and the nervous system. When calcium metabolism is interfered with, there may result a deficiency, in which case the bones, muscles, nerves and ligaments are deprived of their calcium. Under these conditions, there may directly result scoliosis, knock knees, bow legs, flat feet, etc.

This condition of calcium deficiency was made very real in a study of a number of cases of scoliosis. After that, the same underlying causes were found in the other conditions just mentioned. The orthopedic surgeon is so interested in mechanical and surgical measures that the part of the treatment depending on physiology and physiologic chemistry may often be overlooked. In many of these cases, there will be found the history of an artificially fed baby. This usually means that the food was sterilized or pasteurized, or both. When this is done, the vitamin substance is destroyed or partially destroyed, and no substitute is as good as the real thing in fresh, uncooked milk. In this way, many babies are scientifically handicapped at the very beginning of life, and specialists in infant feeding persist in believing that this is the thing to do. The vitamin substance is an essential in calcium metabolism.

Another supposed fact in physiology is that the thyroid secretion presides over calcium fixation in the system. These facts become of the utmost importance in treatment.

* Read before the Section on Orthopedic Surgery at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

That a great difference may result in two children brought up, the one with and the other without, the vitamin substance, the following history will illustrate:

A mother brought her two children, the one about 12 or 13 months of age, artificially fed from birth and still being given sterilized milk mixtures by a specialist. The other child was about 4 years of age and was a perfect picture of health. The story was that the older child was brought up in accordance with a so-called "doctor's book" that the mother had bought. This child had always been perfectly well and had never given a minute's trouble, while the baby had been under a specialist's care all the time and had never been anything but trouble. The baby was brought because of a curvature of the spine. In addition to the deformity, examination brought out the fact that the baby was fretful, crying out if it was handled very much. Even the cry of such a child is almost pathognomonic after one has heard it a number of times. As for walking, it was out of the question. The book that the mother used as a guide for the older child was by Dr. L. Emmett Holt, which meant fresh, raw, uncooked milk. The specialist for the baby had used formulas enough to feed a kindergarten, but they had always been sterilized. The treatment consisted in substituting fresh milk and lime water, orange juice, etc. In a month the baby was practically well.

Another case was that of a baby aged 22 months. This child was brought because of a lame and painful hip, which had *slowly* developed. On examination with the baby stripped, there was a lameness on walking, but it was more a walk against the baby's will because the weight bearing evidently hurt, more complaint being made of one hip than the other. Closer examination revealed that handling the baby very much also hurt. A roentgen-ray examination showed a normal hip joint. The history brought out the fact that the family was buying pasteurized milk and the baby was getting that and not much else. The substitution of fresh milk and the giving of orange juice, etc., was all that was necessary. In a month the baby was able to run about.

It does not do to be misled because the baby is being fed on mother's milk. This may be at fault also. One illustrative case will suffice:

A nursing baby aged 9 months was brought because of a very evident curvature of the spine. The deformity began at an early age, because when about 5 months old, the baby had been taken to a competent man who had placed it back down on a well-padded board. The idea was, apparently, that with the body weight removed by the recumbent position, the spine would straighten. No attention was paid to the mother's milk. At 9 months, when I saw it, the bones and ligaments were soft and the muscles flabby, so that when the baby was placed in the upright position, the spine would not support the body weight, and yielded in every way, and all kinds of curves resulted. With a nursing baby, there could be only one answer, that is, the mother's milk. The baby was weaned and put on cow's milk and lime water. It was also given orange juice, and in about five months was apparently all right and walking.

Another case was that of a boy about 10 years old, who was brought because of a scoliosis. In addition, the history revealed the fact that the boy was very irritable, having "crying spells" and remaining in the house rather than playing outdoors with the other boys He had been a bottle-fed baby with sterilized milk, which had been continued until he was 13 or 14 months old. Examination revealed a scoliosis; also the lower eyelids were somewhat puffy and the appearance in general was flabby. Here was a complete picture of lack of calcium due to the absence of vitamins. The treatment consisted of adding milk to the diet, with sufficient lime water to render it distinctly alkaline. Orange juice was given, also thyroid extract, one half grain, morning and night. A jacket was applied for the mechanical correction of the deformity. At the end of a month, the jacket was removed, a second one being entirely unnecessary. The spine had straightened up wonderfully, and as regards his general condition, he was another boy. He was now playing with other children, running and romping as a normal, healthy boy should. No further attention was paid to the spine, which proceeded to straighten up completely without any mechanical or gymnastic treatment.

In a knock knee, the superincumbent weight bulges the knee inward, and nature then makes the inner condyle larger to assist in supporting the body weight. In a bow leg, the bones are bent outward, and in both deformities, the ligaments of the knee joints are very lax, so that the leg can be rocked in and out in a marked excursion on account of the great laxness of the ligaments. In such cases, the muscles are weak and the children flabby. Osteotomy for the knock knee, and osteoclasis for the bow leg or braces if operative treatment is unnecessary, may make the leg straight; but the joint capsule and ligaments are still lax, and the general condition of the child remains the same. Among the better class of people, the history is likely to be one of sterilized milk mixtures and, not infrequently, either the sterilized milk is continued unnecessarily, or milk is obtained from a pasteurized supply. The general condition should be taken into account and proper etiologic treatment instituted.

Another type of patient is the youngster who is brought in for so-called flat feet. Such a patient is in much the same general condition as those just described under bow leg and knock knee, with general flabbiness and weak musculature. The two tibials, anterior and posterior, have apparently lost their tonicity, the ligaments have stretched, and all this because of calcium deficiency. In many cases, at least, the history shows that the child was bottle fed and the food sterilized. In addition, in many of the cases, the sterilized milk was continued for many months or else pasteurized milk was substituted. Whether the treatment is the mechanical balancing, or exercises, or both, the result will be much improved if the calcium deficiency is taken care of, because this is fundamental.

Another condition that comes under the care of the orthopedic surgeon is that of lack of union or delayed union in fractures. The majority of such cases coming for treatment have been in children who were bottle fed, with sterilized milk mixtures. These children being deficient in calcium, the delayed union has been attributed to that. The administration of calcium in some form, in connection with thyroid extract, has been instituted, while at the same time, diathermy was applied locally. In my hands, the results have been much more rapid and more satisfactory than with any other methods of treatment.

Just a word regarding arthritis: We know something about focal infection and all that, but there is a certain (large) percentage of cases due to faulty physiology or metabolism. In these cases, the trouble is from autointoxication on account of faulty action of some of the abdominal organs, as the intestine or the liver. In a recent article [1] by a specialist in stomach troubles in which a study had been made of a series of histories of patients suffering from various abdominal disturbances, it is stated that "the majority of these patients dated their sickness from an acute abdominal illness, and this acute illness often occurred in the first years of life, especially in bottle fed infants." Again, the same author says that "at the time of the initial attack, there was uniformly a great

1. Peckham, C. F.: Rhode Island M. J. 3: 47 (March) 1920.

increase in the amount of intestinal mucus," and that "following the acute attack, certain dyspeptic symptoms more or less irregular in their occurrence made their appearance; the patient had to exercise care in the selection and the amount of food taken, in order to be comfortable, and there was a great liability of attacks of indigestion either acute, subacute or chronic."

From other sources and from some personal experience, it seems to be a fact that when calcium metabolism is interfered with, the mucous membranes may suffer in direct consequence. Here seems to be a line of thought that directly connects an increase of intestinal mucus and consequent dyspeptic conditions with patients who began life as bottle fed babies. This kind of reasoning at once places calcium deficiency as, at least, a factor in a certain percentage of cases of arthritis; and if this is taken into account, it will afford much aid in the treatment.

In any deformity, Nature always tends to make the part grow back to normal if the physiologic machinery is working properly. When orthopedic deformities are brought for treatment, the fundamentals resting on the physiologic processes must be taken into account. The results of such treatment are very evident. If fresh uncooked milk, orange juice, and in many cases, thyroid extract, are administered, the difference in the result obtainable is often remarkable. Another important thing is the addition of lime water to all milk given. Cow's milk is acid, and in the winter when ensilage is used, the acidity is much greater. All milk should be tested with litmus and sufficient lime water added to render it alkaline. It should not be guessed at. The acidity may nullify any good that might otherwise be derived.

One bad habit is so often repeated that I wish to call especial attention to it: If a baby has diarrhea or any other intestinal disturbance, the medical attendant will order, quite properly, sterilized milk, just as he would order some kind of medicine. When the baby recovers, the sterilized milk is likely to be continued indefinitely, much to the calcium detriment of the baby; while, if drugs are ordered through any sickness, the parents usually discontinue them, even if not instructed to do so by the physician.

I think it has not been appreciated what "human nature," always looking for the dollar, will do to pasteurized milk. If a general dealer gets some of his milk from a distance so that on arrival it is slightly turned, it might then all be mixed together and pasteurized and the temperature made "sufficiently high" to "do the work." Also, in some dairies, if the milk gathered from different sources was pretty thin or if "human nature," again yielding, made it thin, enough condensed milk might be added to make it look pretty rich. The whole mixture might then be made bacteriologically safe for general distribution, by pasteurization. If such things are done (and are they not done?), is it to be wondered at, not that many babies are physically and physiologically handicapped, but that many more are not affected.

The effect on the human economy from the use of pasteurized milk is a slow and insidious affair. It takes a long time, for example, to produce a condition of scurvy. As a matter of fact, we see very little scurvy in the acute form, but we do see a metabolism interfered with on account of calcium deficiency due to absence of vitamins, and these children, as they grow older, get into various kinds of trouble as a direct result. At a discussion on this subject before the New York State Medical Society at its March, 1920, meeting, Dr. L. Emmett Holt made the statement that "such children were much more susceptible to infection, such as pneumonia, typhoid fever and scarlet fever," and I have not the slightest doubt that the death rate with such diseases is much greater than in other children.

It seems to me that this is a live subject for orthopedic men to take into consideration, and the object of this paper is to present a few concrete cases in which the treatment along the lines indicated has been of the greatest assistance.

249 Thayer Street.

## ABSTRACT OF DISCUSSION

DR. MAURICE L. BLATT, Chicago: Vitamins are not killed by the sterilization of milk. Experimentally, fat soluble A has been subjected to 15 pounds of steam pressure in the autoclave for three hours and has not lost its active properties. The water soluble B occurring in milk is not killed; its activity is affected little, if any, by sterilization. Under those circumstances it seems illogical to discuss bone deformities from the standpoint of the killing of vitamin by the action of sterilization.

Certain principles of infant feeding which, both from clinical experience and experimentation on young animals, we are inclined to adopt. The first of these is pasteurization or sterilization of milk by heat. All who live in large cities or in communities where milk is brought in from a distance, are dependent, in large measure, on heated milk. It is practically impossible in any of the larger cities in the United States to obtain economically adequate supplies of milk which has not in some way been subjected to heat. Both pasteurization and boiling produce definite changes in milk, changes that are desirable and advantageous. First, the boiling of milk makes it a more digestible food. It makes the proteid curd, formed in the stomach, a fine instead of a large one. Second, the boiling of milk kills a large number of the pathogenic organisms ordinarily present. The bacillus of tuberculosis is killed by boiling, and we firmly believe that we save many lives and prevent much bone tuberculosis by boiling milk. Third, the economic question in a large city is a factor of very grave importance. If we could afford to feed all children with the costly certified milk, a somewhat larger percentage of raw milk would be used.

There are, however, factors in the feeding of children which are of far greater importance than heat, and one of the most important of these is the proper balance of food. To avoid scurvy, we add raw orange juice to sterilized milk; also vegetables and cereals. The degree of digestibility of all cooked vegetables fed in infancy is dependent entirely on the fineness of subdivision and not on the age of the child. In certain races there is a tendency toward rickets, and a low vitamin content of the mother's milk is the factor in the production of rickets. It does not contain enough fat-soluble A.

DR. L. C. SPENCER, New Orleans: Children fed under the direction of the specialist are always underfed. During an experience in one of the large hospitals in Baltimore, with many cases in which rachitic deformities occurred, we found that the mother was careful about what the child had. When the mother was careless or ignorant in this respect, but able, nevertheless, to provide good food, the child was well nourished and deformities were minimized. Surely the pasteurization or sterilization of milk is not very important in itself, for this reason: The rachitic deformities occur in greatest number among those people who do not use sterilized or pasteurized milk. The negroes present more rachitic deformities than any other class. The Italians and Russian Jews also exhibit a large number of rachitic deformities. And among these classes not much cow's milk is used in infant feeding. They, for the most part, use mother's milk or anything that comes to hand.

Dr. A. H. Byfield, Iowa City: The orthopedist realizes that rickets is almost a universal disease, and that realization has come to us as well, although the question of the cause of rickets in infants has not been solved.

The relationship of the vitamins to this problem should be considered. We have found that the growth stimulating vitamin is not affected by heat. But the growth stimulating vitamin content of cow's milk is low. The theoretical possibility, mentioned by Dr. Peckham, that the growth stimulating vitamins may be intimately bound up with calcium metabolism, has engaged our attention in quantitative experiments, and it is our hope that a report on the subject will be ready within a year. However, if those orthopedic experts who pay close attention to the feeding of their rachitic patients wish to increase the content of growth stimulating vitamin in the food, they ought to prescribe orange juice. This fact was established independently by Dr. Mandel of our clinic and a full report will soon appear. Orange juice is also an antiscorbutic and probably also contains the thyroid vitamin.

In regard to the question of calcium in rickets, from what I have been shown in connection with experimental nutritional work carried on in our clinic, I believe that the trouble is not so much due to whether milk is boiled or not, but to whether it is pasteurized, and also to whether a sufficient quantity of milk is given.

Dr. Gustave Lippmann, St. Louis: In my work with babies that must be breast-fed, I have found it necessary to be careful about the food of the mother. Many people of the poorer classes live almost exclusively on root vegetables; the mother eats very few green vegetables. In these cases our first duty is to get the mother on a vitamin-rich diet. In all my clinical work with rachitic infants I immediately correct the diet of the mother. This applies as well to the cases of rickets among the well-to-do. With a carefully selected diet, the mother eating steaks, some sweets, fresh vegetables and fruits, the condition of the child will improve. Experiments carried on at Wisconsin University have proved that when the mother animal is fed on a vitamin-free diet, the young develop rickets. Therefore, do not take a rickety baby off the breast. If you feed the mother correctly on a vitamin-rich diet, you may overcome the rickets in the child.

Dr. J. D. Griffith, Kansas City, Mo.: In 1869, Dr. Van Buren, one of my teachers, asked me what I wanted to do in the future. I told him I wanted to practice surgery. He advised me to go into medicine at once, to broaden myself. I do not know much about the specialty of pediatrics, although I was a general practitioner until 1888. I found that by feeding children vegetables, even though we did not know anything about vitamins then, we secured results. If the child was "scrofulous," as we called it then, or if it was suffering from some other condition which prevented proper development, we prescribed lactate of lime, fed fruits, fresh vegetables, etc. We did not know why we did this, but we got results. This was especially true in cases of delayed union of fractures. We did not attempt to correct the condition at once by surgical means. And we learned another thing. When the child's breath gave out an odor peculiar to the condition now known as acidosis, we gave alkalis. We did not know why, but we secured results. I have, to a degree, kept up that same treatment, and now, before invading a gallbladder or attempting repair in a case of delayed union, the surgeon sends the patient to a hospital for observation, and, perhaps, finds that some of his physiologic processes are wrong. These things we can figure out now, but we could not do so then.

Dr. Frank E. Peckham, Providence, R. I.: It is a fact that the children I have observed are the ones that have been artificially fed, and even some of those have had what we in our community call the balanced ration; they have had oranges and canned tomatoes. Their physique is not as good, perhaps, as if they had been fed differently—I do not know how—but they are coming to us in increasing numbers. Something is radically wrong. As to *acute* scurvy, of course, the result of this method of feeding is not scurvy—we see almost no *acute* scurvy. We do not see calcium deficiency and we get these results. The feeding of the mother is important. In Russia are the largest number of cases of acute scurvy among adults in the world, whereas the children of those parents have almost no acute scurvy. What is the answer?

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## EARLY ACTIVE MOTION IN INTRA-ARTICULAR FRACTURES *

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The suggestions of this paper are not entirely new. The principles on which it is based were propounded and practiced years ago. Overenthusiastic use and application of the methods in fields where their uses were mechanically contraindicated brought a fairly general condemnation of the procedures. And for a period of many years we have had no more than a mentioned disregard for the entire method (without retention of the features that are good in a limited application). We have fallen easy victims to the hard and fast rule of splinting firmly and permanently all fractures.

Our fracture literature has been filled with ideas as to the methods for fixation of the broken bone, with practically no consideration of the lesions in the surrounding soft parts, acquired at the time of injury or, more commonly and with more serious consequence, occurring during the period of prolonged fixation. Rest and protection are essential for repair. Too much rest and too prolonged rest under pressure bring not repair but degenerative changes, which remain as a permanent possession of the traumatized soft parts, and tend through diminished circulation to extend progressively into the remaining normal tissue of the organ.

During the last five years, Willems of Belgium and his satellites have attracted much deserved attention by their radical and successful active motion treatment in traumatized joints. The early foundation for this was set by work done previous to 1908 when he reported to a surgical congress thirty cases of hemarthrosis and traumatic hydrarthrosis treated by evacuatory puncture and immediate modilization. No one who saw the septic joint clinic at LaPanne, or who has been able to follow closely the requisites in the mobile treatment of these joints, can deny the many advantages of the proceeding. The propriety of the method has been unquestionably demonstrated. The many failures seen in the hospitals of the American Expeditionary Forces were due to too many changes in the care of the individual cases. Fractures into the joints were not contraindications to motion. Extensive lesions involving one or both epiphyses did not prevent careful mobilization.

### PATHOLOGY

Any violence, direct or indirect, sufficient to produce a fracture within or into a joint, produces lesions in the surrounding soft parts. There is between each fascial plane a certain amount of hemorrhage. In the adjacent muscles, especially when there is a direct trauma or pulling injury, a certain amount of laceration results in hematoma formation within the muscle. This applies especially about the shoulder in the

* Read before the Section on Orthopedic Surgery at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

deltoid, and at the elbow to the brachioradialis and pronator teres. Rapidity of absorption of these hematomas determines the amount of residual new cicatricial tissue formation in the fascial plane and muscle. And the ratio is inverse. Any measure promoting absorption will give less permanent damage.

In the tendons so freely distributed about joints, especially the wrist and ankle, we have to deal usually, because of slight degree of vascularity, with a simple serous exudate (traumatic in origin) within the tendon sheath. Direct contusion or minor laceration of the tendon makes for an exudate richer in fibrin and hence more plastic in type. In the simple serous type, danger of adhesions within tendon sheaths is relatively slight. Too troublesome adhesions form in prolonged immobilization. The hemorrhagic and plastic exudates will often give practical obliteration of peritendon space. Even slight motion, if early, is a certain preventive measure.

As to the ligaments, the thickened portions of capsular ligaments are never torn across. The commonly called "ruptured ligament" is in reality torn from one of its attachments and carries with it periosteum and often a thin shell of cortex. Injury to the remaining thinner portions of ligaments is always parallel to the direction of fibers, a bursting between rather than across fibers. Normal motion will tend to proximate these edges.

The synovial membrane has before it the problem of handling a hemarthrosis. If the capsular ligament be torn at any point, as it always is in a linear fracture extending into a joint, the synovia shares the same good fortune. If this tear is sufficient to permit the intra-articular hemorrhage to be extruded into the surrounding soft parts very early, the work of the synovia is decreased. There will be less blood and hence less fibrin for an adhesive synovitis. If early motion can be permitted, extrusion of blood into surrounding parts will be accomplished more rapidly, and synovia can get back to its normal task of secretion rather than absorption of material foreign to its surface.

Residual fibrin, especially in the borders and pouches, in a week or ten days becomes so well organized as to cause uncomfortably firm adhesions between the adjacent synovial surfaces, and in eight or ten weeks, if undisturbed, gives permanent fixation of synovia. This is seen in limitation of motion in the stiff knee after fracture of the femur, in stiff elbows and fixation of the head of the radius after fractures in the arm or forearm. From 50 to 75 per cent. of normal range is regained, but no more, because of marginal adhesions.

There are two roads to travel: to prevent the formation of these adhesions or to break them up after the desired period of fixation is completed. The lack of success in manipulation of joints under an anesthetic is a too common experience, especially for the patient. Full range of motion, but with a joint persistently too painful for function, is a result disastrous (for the patient). Stiff joints may do work, but painful ones are worse than useless.

### REDUCTION BY OPEN OPERATION OR MANIPULATION

Proper reduction of this type of fracture is as essential as in diaphyseal lesions. The nearest approach possible to anatomic reposition is desirable. Those cases with fragments rotated and seemingly blocked in malposition are at once classed in the open operation group. However, nothing is lost by two or three conscientious attempts at reduction by manipulation. Under complete anesthesia, gradual traction, manipulation with manual molding, will often give surprising results. Functional reduction, that is, normal contour of the part, with no obstruction to slow, gentle, passive motion through complete range of the joint, is sometimes obtained without anatomic reposition and with the control roentgenogram showing an apparently bad position. And this normal range of motion without marked external deformity is the aim of the best surgery. If this normal range of motion can be obtained without force under an anesthetic, the patient can, if given proper opportunity, duplicate that range within a relatively short time, and without pain.

When open reduction with fixation of fragments becomes necessary, no active motion of the patient will dislodge a properly fixed fragment, and hence there is no contraindication to early active motion. The earlier the reduction, the easier; and the earlier the fixation, the less the hemorrhage and swelling. The immediate reduction and fixation is as much an emergency as the "acute" abdomen. Waiting for the swelling to subside is poor surgery. In the open reduction, the presence of infected abrasions or lacerations must be the factor determining time of interference.

### PROTECTION AND EARLY REPAIR

Protection of the injured joint is a necessity. This protection must be directed against further external violence, against fatigue from maintaining the constant position of the extremity, against increasing or continued swelling of the part, and against motion not limited by pain, as is necessary in the postether restlessness or in the delirious or insane. Splinting is essential, and protective rather than destructive splinting is desirable. Absolute immobility is neither necessary nor comfortable; at the shoulder a properly adjusted sling or aeroplane splint, at the elbow a well padded figure of eight with additional trusses holding the forearm in flexed and suppinated position is sufficient. Effective and comfortable elbow fixation can be made without including the shoulder or wrist, and leaving the hand and fingers for light duty tasks. Molded splints of plaster for the wrist, leaving the thumb and fingers free and moving, should be used.

At the knee, because of leverage of weight of the leg and foot, a long posterior splint or bivalved circular plaster is necessary; at the ankle, the molded plaster splints or again a bivalved circular plaster. All these are readily removable and replaceable, and give adequate fixation.

In the experience of each surgeon who has had to do with open reduction of fractures of any type from the third to the seventh day after injury, there is commonly discovered a surprising tenacity in the bridge of blood clot between the two fractured surfaces. A curet or periosteal elevator is practically always necessary in clearing the bone ends. In a properly reduced fracture in which the bone surfaces are in fairly intimate contact, this adhesive force of the fibrin layer is even greater, because of its decreased thickness and greater surface contact. At the end of three or four days, considerable force would be required to dislodge these fragments. In and about the joints, a force sufficient to put undesirable strain

on these parts will give rise to discomfort, and a force sufficient to cause the least motion in the fragments will give rise to pain.

Any agency that is antagonistic to repair demonstrates its presence by increased discomfort and pain. Any agency favoring repair shows itself by increase of comfort. Diminution of swelling makes for comfort. Increase in local circulation will cause earlier absorption of hematomas and exudates in soft parts. Very gentle, light massage is pleasing and comfortable to the injured part, and aids early restoration of normal superficial circulation. Deep massage is painful, and our fingers cannot well judge the prepain point for another. This is the ground for objection to the passive motion advocated by so many.

### EARLY INSTITUTION OF ACTIVE MOTION

Careful removal of splints or bandages restraining motion can be done without discomfort. Active contraction of muscle groups can be accomplished with a little instruction to the patient. These are started in the dressings the second and third days. Slight active motion—from 5 to 10 degrees of the distal part—can be made the fourth or fifth day. From two to three movements are a sufficient start, and demonstrate to the patient his ability to move without pain. Dressings are replaced. The following day there will be a greater range, with from six to eight movements. Active muscle contractions are continued from time to time in the splint. Muscle tonus and volitional control are not permitted to be lost. By the tenth day motion is up to half normal, and the normal contour of the part is practically regained. No passive motion is attempted, no forced active motion and no active motion that is productive of pain. By the end of the third week, range of motion should be 90 per cent., and a little passive force produces only discomfort. Support is used for an additional week, but only at night and in irresponsible patients. In others, limited function is started; in four weeks active use without support; and the additional two or three weeks, usually required to "limber up" the extremity, is unnecessary.

The whole question is permitting the patient all motion that is not painful. Soreness or an aching arm is an index of too much work the preceding day. Failure to obtain diminution of swelling each day means poor judgment in determining daily limits.

### DISADVANTAGES

These methods present the disadvantage of requiring more time and personal attention of the surgeon, either in the daily personal care or in the instruction of office assistants in requisite carefulness in treating the injured joint, and as to proper reapplication of splints or supporting bandages. It requires more time and attention of the patient, but for the time being he is disabled for duty, and his whole task is to get well as rapidly as possible.

### ADVANTAGES

1. One great advantage can be seen early, in the mental relief to the patient when he sees the joint in motion. His vision of a stiff joint is dispelled early and cooperation is all the more hearty.

2. There is left little chance of danger from poorly applied or ill-fitting methods or fixation.

3. Ischemic paralyses with their diastrous outcome are avoided.

4. Muscle tonus and volitional control of muscles are maintained.

5. Temporary pathologic changes in muscles are more quickly overcome, and the persistent fibrous degenerations are avoided.

6. There will be less chance for the calcareous degenerations in muscles and ligaments about the joint.

7. There is less chance for a complication of plastic adhesive synovitis and the residual crepitating joint.

8. The absorptive changes in bone, the decalcification from disuse, are reduced to a minimum, if not entirely avoided.

9. There is less danger of ankylosis, fibrous or bony.

10. The method obviates the too frequent procedure of breaking up adhesions under anesthesia, with repeated injury to soft parts and increased functional damage.

11. The additional two or three weeks normally used in limbering up the joint and regaining strength of the part become unnecessary.

12. The shorter period of disability, complete and partial, is financially attractive usually to the patient, always to the employer, and often to both.

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## ABSTRACT OF DISCUSSION

Dr. Paul A. McIlhenny, New Orleans: There has been a revolution in the treatment of injuries into and near the joints brought about by the World War, but many surgeons find it difficult to get away from the old idea of prolonged limitation of motion in cases of fracture into a joint. This is a great failing, and we should try to eradicate it. Primarily, we should make a most careful examination, under anesthesia, of all joint injuries in which we believe there is a possibility of fracture. Early recognition and early reduction of displaced fragments will enable us to deal with the associated inflammatory condition in a much more comprehensive and common sense way. There should be exact reposition of displaced parts, and fixation or removal of all small, loose fragments, and active voluntary motion limited only by pain, no passive motion whatsoever. Light massage, also limited by pain, is of great benefit, stopping when the patient feels discomfort. Early functioning, not necessarily weight-bearing, voluntary motion of the joint, encouraging the patient, building up his morale by helping him to realize that he is going to get a much better functioning joint if he will help himself, will be found most useful. Keeping up muscle tone will prevent atrophy of the bone and soft parts, and instead of having a prolonged postoperative treatment of six months' duration, during which there will be almost continuous pain, the patient will be able to get back to his work in from six to eight weeks with a fairly good functional result.

Dr. Walter G. Stern, Cleveland: I would like to know where one gets justification for that "go back to work in six weeks idea." We all know that fractures near a joint or elsewhere require more than six weeks for the bone to heal firmly. The records of the medical department of the U. S. Army show that men with fracture of the shoulder joint as a rule go back to duty in twelve weeks; of the elbow joint, sixteen weeks; of the wrist, in eight weeks; of the shaft of the humerus, in twelve weeks; of the hip joint, in twenty weeks, and of the knee joint, in about sixteen weeks. I quite agree that active motion in that range of activity which is performed without much pain is absolutely legitimate, and the very best form of treatment for these fractures. As to open reduction of fractures near the joint: the surgeon must be the one who will say if open reduction is necessary in any given case, but if done it should be done at that time when the tissues are best able to take care of infection. If one operates immediately after an injury he is operating at the time when the vitality of the tissues is at the lowest ebb.

Animal experimentation has shown that the elbow joint and knee joint will stand operation several days after injury much better than when it is done immediately after the accident. So well is that understood that I know many surgeons who follow the dictum that one should not open the elbow joint or the knee joint in fracture cases until about one week after injury. Dr. Schrock states that the reason for the immediate operation when indicated is that after a week has elapsed one must use the leverage of an instrument to reduce the fragments. I take it then that he thinks that by operating at once the fragments can be reduced without leverage. If this is so, open operation should not be necessary at all. I rarely find a case in which the fragments are not so loose that even without an open operation, the fracture cannot be reduced without any instrument except the Thomas wrench, an osteoclast and the fingers, a padded wedge or an extension table.

DR. ALBERT H. FREIBERG, Cincinnati: In the treatment of fractures of the joints it is a very common practice to permit the effusion of blood in such cases where open operation is not considered necessary to become absorbed. That is a great error. After forty-eight hours the wisest thing to do is to aspirate the joint and remove the blood. I have seen a considerable number of cases in which there has been recurrence of trouble in the knee joint because of the blood that has been allowed to remain in the joint, particularly the knee, and in which I have found by arthrotomy the characteristic small particles resembling rice bodies which have resulted in repeated attacks of effusion in the knee joint by producing mechanical irritation.

DR. M. S. HENDERSON, Rochester, Minn.: As to the time of election for operating on fractures: We have been told that we should wait from five to ten days. For a number of years I have disregarded this advice, and have not hesitated to operate immediately. I cannot see any reason why we should wait.

DR. HARRY M. SHERMAN, San Francisco: It has been my experience that one may go into the knee or elbow at any time after the fracture has occurred without any more danger than if one were to wait a week or some other specified time. The thing is to get the fragments back by the means necessary as soon as possible. If that requires an open operation, do it.

DR. HORACE R. ALLEN, Indianapolis: I agree with Dr. Sherman. We have all had plenty of cases of compound dislocation and fracture of the ankle, for example, where the foot turned in or out and four or five inches of the tibia became driven into the dirt. First scrub all contaminated parts with soap and water, then use mercuric chlorid or the Carrel-Dakin method and always apply enough ether to dissolve out any fatty particles; then reduce the fragments. Under this treatment I have never known any rise of temperature to take place above 1½ degrees, and then subside promptly.

DR. EDWIN W. RYERSON, Chicago: Mobilization of fractures as soon as practicable is of great importance, and when feasible we ought to do it as soon as we can, but there are many fractures in which we cannot begin active mobilization very soon. Championnière was the originator and most ardent supporter of this method of treatment, and it is remarkable to note the successes that have followed the inauguration of active mobilization in those cases in which it is applicable, such as Colles' fracture, which has very little tendency to displacement after once being reduced properly. In cases of condylar fracture around the elbow joint it is also a valuable method of treatment. A good deal of motion can be made in such cases without in the least endangering the position of the fragments. Furthermore, we should not lose sight of the fact that actual bony union takes a very long time; it does not occur in six weeks in the case of the larger bones, in persons of average age or even in children. Allison made experiments in regard to absolute bony consolidation and found that the shortest time to consider fractures solidly united was about four months. We have all seen children who have sustained fractures of the femur and who have apparently a good solid union in two months, after which they have been allowed to go about without any splint or apparatus, and deformity has occurred in many such cases. Following the treatment of fracture in rachitic children I have seen deformity occur often. So do not forget that it takes time for bone to become solid and do not let stress be brought too soon on the bone that has been fractured. We should differentiate in these cases.

DR. WILLIS K. WEST, Oklahoma City: Every case of fracture of the neck of the femur which I saw treated in the Middle West recently by men known as orthopedic surgeons was treated by the Whitman method; every case of fracture of the neck of the femur treated by men who were general surgeons was treated by some other method, and I wondered why that was so. Perhaps the orthopedic surgeon understands best how to apply the plaster cast or he knows less about the other splints, or the general surgeon knows less about the plaster cast and more about the other splints. I believe that the Whitman method is the best method, and reduction should be made right away. But any one who attempts to use the Whitman method without bearing in mind every cardinal point that has been brought out by Whitman will have trouble. Some of the essential points are: First, he must have a Hawley or a similar table; second, there must be plenty of assistants in the operating room; third, the limb should be put in the proper position, the leg at right angles with the thigh; and, fourth, the patient should be in the cast eight weeks and in bed twelve weeks.

DR. ROBERT D. SCHROCK, Omaha: With reference to the time limit, I can cite two cases of men back at heavy duty in seven weeks. One man was shoveling coal in six weeks. He had had a linear fracture extending into the elbow joint. The question of instrumental reduction, I believe, was misunderstood. A common experience was mentioned, i. e., when operative intervention is necessary for reduction, it is a common experience to find the organized blood clot very firmly adherent to the bone surface. This was brought out to illustrate the strength of the cohesive force that we would obtain between well reduced fragments. This force is certainly sufficient to prevent motion of fragments in or about a joint after from forty-eight to seventy-two hours, when the adjoining segments may be permitted guarded active motion. The time of operative intervention in fractures was mentioned in those cases in which there was definite indication for open reduction. Dr. Stimpson's dictum was from seven to ten days after injury. In practically all these cases we find minor abrasions about the joint, little scratches on the surface. These superficial lesions were, I believe, the real reason for delay. In cases with no abrasions, where asepsis is possible, operate at once where open reduction is indicated. If this can be done at once, reduction of the fragments is much simpler, we get rid of a great deal of intra-articular blood, and we get rid of the later probability of the small residual fibrin bodies. Dr. Freiberg brought up the question of hemarthrosis. I believe aspiration of these joints in from forty-eight to seventy-two hours is advisable. Further hemorrhage after forty-eight hours is hardly to be expected. Going further than aspiration, irrigation with sodium citrate solution through a good sized trochar brought very satisfactory results. The mechanical effect in removing small clots already formed is more important than the coagulation delaying effect of the particular salt used. In the introduction of the paper, direct mention of the work of Lucas-Championnière was not made, but I referred to his work in making the statement that too wide an application of his methods had brought the method, as a whole, into disrepute. We should use the good that he proposed, and particularly is this true in intra-articular fractures when treatment can follow along those lines.

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**Saving the Babies.**—In its campaign to save the babies the Children's Bureau is sending out a number of four page leaflets in promotion of the work. Among the subjects briefly treated in these leaflets are "The Care of the Mother," "Breast Feeding," "Milk," "Bottle Feeding," "The Preparation of Artificial Food," "Feeding the Child," "Good Books and Pamphlets on Child Care," and "Is Your Child's Birth Recorded? If Not, Why Not?" These are for free distribution to the public.

# THE PHARMACOLOGY OF CHELIDONIN, A NEGLECTED ALKALOID OF CHELIDONIUM, OR TETTERWORT *

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The object of this paper is to call attention to the activities and usefulness of chelidonin, a neglected alkaloid, and to correct certain impressions in the literature. The root from which it is obtained was formerly official in the U. S. Pharmacopeia (1890) under the name *Chelidonium majus*. It belongs to the *Papaveraceae* and contains several constituents, of which the alkaloid chelidonin, however, is probably the most important. The plant yields a saffron-colored, acrid juice that formerly enjoyed considerable popularity as a corn and wart remedy. The rationale of this is not understood, unless it is based on the acridity of the juice, which is relatively high. The juice contains practically no chelidonin, which is found chiefly in the root. The plant grows wild in this country, chiefly in the New England states and in the Northwest, and has been recently cultivated by Prof. Henry Kraemer at the College of Pharmacy, University of Michigan. The yield of alkaloid from the root is about 0.03 per cent. *Stylophorum diphyllum* also contains chelidonin and has been used as a source of the alkaloid in this country.

Concerning the actions of chelidonin, the United States Dispensatory [1] says:

> Although both Peronin and Meyer (*Arch. f. exper. Path. u. Pharmakol.* **29**:397, 1892) asserted that chelidonin has distinct narcotic properties, the experiments of Hanzlik (*J. Pharmacol. & Exper. Therap.* **7**:99, 1915) throw grave doubt on their conclusions. The latter investigator found that its only physiological action was a paralyzing action on the unstriped muscle, and suggested its use in asthma and spasmodic colic.

This quotation contains some errors. The paper referred to is that of H. H. Meyer and not Peronin and Meyer. The results of my own work did not deny the possibility of narcotic effects reported by Meyer, and the experiments on smooth muscle showed this to be depressed and not paralyzed.

The first pharmacologic study of chelidonin was made by H. H. Meyer, who showed that chelidonin differs from morphin in several respects.

The narcosis from corresponding dosage was not nearly so pronounced and the depression was not later followed by excitation of the central nervous system. Meyer attributed the slowing of the pulse to vagus stimulation, but this is erroneous. In a previous publication, I showed that chelidonin depresses smooth muscle in all regions thus far tested, namely, in bronchi, uterus, intestine and blood vessels. This occurs independently of nerve connections. It also antagonizes the actions of pilocarpin, histamin, pituitary extract and barium on smooth muscle, and relaxes the bronchoconstriction of anaphylactic shock. From this it is seen that the effects of chelidonin resemble very closely those of papaverin.

The chemical formula for chelidonin, is $C_{20}H_{19}NO_5$, for papaverin $C_{19}H_{20}NO_4$, and both contain the benzyl isoquinolin ring. Hence, the similarity of their pharmacologic actions is to be expected.

Because of certain discrepancies in the work of Meyer and the economic advantages offered by chelidonin, I have investigated its pharmacologic actions in several directions. In this work an alkaloid of German origin (Merck's) and a specimen of American origin prepared by Prof. John Uri Lloyd [2] of Cincinnati were used. The sulphates were used exclusively. Only the sulphate and phosphate are soluble, the hydrochlorid being very insoluble. The actions of the American specimen agree entirely with those of the German. A summary of the effects observed is here presented, the full details being reserved for later publication in the *Journal of Pharmacology and Experimental Therapeutics*.

Chelidonin causes depression and narcosis without subsequent excitation of the central nervous system, differing in this resperct from morphin. The respiratory rate is moderately slowed by large doses only, smaller or therapeutic doses being practically without influence. It causes a slowing of the pulse with fall of blood pressure, a fall in peripheral organ volume and increase in cardiac volume due to a direct depression of cardiac muscle, for similar changes occur after vagus section and paralysis of the vagi by atropin. This is contrary to H. H. Meyer, who attributed the slowing of the pulse to vagus stimulation. Chelidonin depresses the functional activity of smooth muscle in all regions (including ureter and bladder) and antagonizes several augmentors as indicated in the fore-part of the paper. Chelidonin also depresses frog's skeletal muscle directly, but does not appreciably affect the nerve trunk, even in high concentrations.

As a rule, the effects of chelidonin on cardiac muscle, excised intestine and blood vessels were found to be the opposite of those of morphin, which acted as augmentor.

The toxicity of chelidonin is rather low, the fatal dose being between 0.3 and 0.4 gm. per kilogram subcutaneously for white rats, mice, guinea-pigs, rabbits and frogs. In the cat the excitation ordinarily produced by morphin is very mild or practically absent with chelidonin. Owing to its low toxicity, chelidonin could be given to children with comparative safety, and might to a certain extent replace morphin in pediatric practice.

Therapeutic observations with chelidonin are as yet limited. The drug is undoubtedly worthy of trial. It has been used successfully in relieving the gastralgia of carcinoma. The drug should be useful against spasm of smooth muscle, as in angina pectoris, hypertonus, asthma and intestinal, uterine and ureteral colic, etc. The dosage used by Ribbing and Rumpf [3] for gastralgia and colic was from 1½ to 3 grains by mouth. It is suggested that when chelidonin sulphate is injected subcutaneously it should be dissolved in sodium sulphate of about 2 per cent. (anhydrous) strength. Physiologic sodium chlorid solution (0.9 per cent. NaCl) cannot be used, since the insoluble hydrochlorid is precipitated.

As to economy and availability, chelidonin offers advantages over papaverin, which, at present, is virtually unobtainable. Being obtained from a weed, which is also easily cultivated, it is apparent that this is a distinct advantage. Chelidonin, like papaverin, is

* From the Pharmacological Laboratory, Western Reserve University School of Medicine.

1. United States Dispensatory, Ed. 20, p. 1314.

2. I am deeply indebted to Professor Lloyd for furnishing me with a generous supply of the alkaloid.

3. Cited by H. H. Meyer.

also more easily and conveniently administered than the benzyl esters, which are disagreeable to many patients.

SUMMARY

1. Attention is called to the activity and usefulness of chelidonin, a neglected alkaloid, obtained from tetterwort or celandine, which was formerly official in the U. S. Pharmacopeia.

2. The actions of chelidonin resemble those of papaverin and the benzyl esters, but differ from morphin in several particulars. It possesses a relatively low toxicity.

3. Chelidonin causes depression and narcosis without subsequent excitation of the central nervous system, differing in this respect from morphin. It slows the pulse and lowers the blood pressure, owing to cardiac depression, relaxes smooth muscle in all regions, and depresses skeletal muscle without influencing the nervous connections.

4. Therapeutically, chelidonin is indicated in hypertonus, angina pectoris, bronchial asthma, intestinal ureteral and uterine colic, or spasm of smooth muscle anywhere.

5. Being obtained from a weed growing extensively in the United States, and which can also be easily cultivated, chelidonin offers a distinct economic advantage over papaverin which, at present, is virtually unobtainable. It is also more palatable than the benzyl esters.

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# THE TREATMENT OF GONORRHEA OF THE MALE URETHRA*

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Gonorrhea in the adult male is a self-limited venereal disease. Consequently, it is commonly considered an ignominious and unimportant disease, the treatment of which need not concern the mind of the well-educated practitioner in medicine.

But those who have had experience with the very slow and unsatisfactory improvement in urethral conditions due to gonorrhea under the treatment they received in the army and navy during the late war will doubtless agree that there is room for improvement in the treatment of this disease as conducted by the average practitioner.

The dissatisfaction with the results of our treatment of urethral gonorrhea has led me to interest myself very considerably in the pathologic conditions involved. From this interest there has arisen a classification of lesions and of the treatment of these lesions, notably in the case of chronic gonorrhea, which has been of assistance to me in helping such cases. Practical as these deductions seem to me, however, I find it almost impossible to translate them into words. I fear to mislead you, and in the hope of misleading you at least as little as possible, I place in the forefront of my remarks the following rule—the only rule in the treatment of gonorrhea to which I admit no exceptions:

All local treatment of urethral gonorrhea implies a certain mechanical violence. Even the gentlest injection or irrigation of the canal implies a trauma to its walls. Now, the success or treatment by local measures requires one of two consequences from this trauma. Either it must be in itself beneficial (e. g., by sounds and dilators) or at least the bad effect of the trauma must be counterbalanced by the good effect of other elements in the treatment.

The evidence that the other elements in the treatment are counterbalancing the bad effects of trauma is shown in general by an improvement in the local condition, a lessening in discharge and discomfort. There are, however, certain forms of local treatment employed specifically for the purpose of exciting an acute outbreak in a chronic condition, and other treatments employed with the knowledge that they are irritating and with the hope that they will prove beneficial in spite of that irritation. Under these conditions the improvement is, of course, not immediate. The patient suffers an acute exacerbation for a brief period following the more severe treatment. During this period he is treated by measures calculated to soothe the urethra, and it is expected that after a few days he will be in a better condition than he was before the severe treatment was given.

Under the foregoing conditions we may, therefore, lay down the absolute rule that a local treatment of urethritis that makes the urethritis worse is bad treatment, and as a corollary, that the treatment of gonorrheal urethritis will succeed in direct proportion to the gentleness of the manipulation.

## TREATMENT OF ACUTE GONORRHEAL URETHRITIS

*Hygiene.*—Experience in the army, as compared with civil life, has left some practitioners convinced that the patients with acute gonorrhea should be put to bed and kept on a very light diet, while others feel that the patient's morale is better when he is permitted to be about, and that this reacts on the course of his disease. On the whole, it did seem that in the army the average case of gonorrhea was rather milder and of shorter duration than in civil life. If this is the case, it is doubtless due to the restrictions which forbade indulgence in alcohol and prohibited exercise, physical or sexual.

Such prohibitions are of the essence of the hygiene of the treatment of acute gonorrhea. The patient should also be prohibited from eating any highly seasoned food, since spices are passed through the kidney in an irritating form, as expressed by the familiar phrase that "what burns the mouth going in will burn the urethra coming out."

*Medication.*—Prevalent opinion as to medication may be classed under four headings:

1. The nihilist system, which gives no attention to general medication.
2. Diuresis, effected sometimes by drugs, but usually by making the patient drink as much water as he can
3. Alkalization, which some prefer to carry only to a moderate degree, while others prefer an excessive alkalization.
4. Balsamic treatment, which is, on the whole, the least popular form of treatment in the United States today.

The supporters of each of these methods of general treatment adduce clinical facts in support. I have no evidence to decide between them, though I incline to favor moderate alkalization, as obtained by the administration of about 2 gm. of sodium bicarbonate four times a day, and the drinking of six or eight glasses of water a day.

*Local Treatment.*—So great is the variety of local treatments applied to acute gonorrheal urethritis that

* Read at a meeting of directors of Massachusetts Venereal Disease Clinics, Boston, April 14, 1920.

one might almost say that no two practitioners employ exactly the same method. Manifestly the success of the treatment depends more on the method by which it is applied, the gentleness in the treatment of the acutely inflamed urethra, and the avoidance of mechanical trauma, than it does on the exact nature of the drug employed.

It has been my impression that the familiar permanganate irrigation treatment has the advantage of rapidly clearing up the discharge, but often fails to get at the gonococci in the deeper layers of the mucous membrane and often permits urethritis to become chronic. My best results have been obtained by the use of 10 per cent. argyrol, four times a day, and retained five minutes each time. The newer remedies—acriflavine and mercurochrome-220—have not been sufficiently tried out to warrant any definite convictions as to their value. It would seem, however, that we are at present obtaining excellent results by irrigating the anterior urethra with acriflavine, 1: 5,000, once a day, and, if this is not sufficiently efficient, adding one irrigation with potassium permanganate a day.

If the urethra is considerably inflamed, and the meatus swollen and urination painful, local treatment of any kind usually fails to control the attack until in the third or fourth week its intensity has begun to wane. The reason for this is the obvious fact that the infection has gone too deep for the antiseptic to reach it. In borderline cases the rule to follow is that the patient who is not rapidly improving under local treatment is actually soon going to get worse, and all local measures should be discontinued. Any increase in pain is also a signal for discontinuing local treatment.

### TREATMENT OF ACUTE POSTERIOR URETHRITIS

If it is understood that acute infection of the posterior urethra often occurs without symptoms and evidenced only by the appearance of a little pus in the second urine passed, one will recognize such a posterior urethritis in a great proportion of gonorrheal cases. It certainly does not require that any instrumentation of the posterior urethra shall be attempted. Quite the contrary: the passage of any instrument through the acutely inflamed urethra is certainly contraindicated. The posterior urethra may be perfectly well medicated by injections into the anterior urethra. A little of the injection always trickles into the posterior urethra, and this is usually all the treatment required. If potassium permanganate is used, the tank is elevated and large quantities of the drug washed into the bladder and then urinated out again.

As in the case of the anterior urethra, if subjective symptoms of pain and frequency of urination appear or grow worse under treatment, this should be immediately stopped.

### TREATMENT OF ACUTE PROSTATITIS

The physical evidence of acute infection of the parenchyma of the prostate consists in the appearance of pus in the second flow of urine, often accompanied by at least a slight swelling of the prostate, palpable by rectum; pus can also be squeezed from the gland. Severe palpation or massage of the prostate gland is to be discouraged for obvious reasons. Irrigation of the rectum with the double current tube and a quart or two of water about as hot as the finger can bear it is often very soothing in such cases. This should be continued even should the prostate apparently go on to suppuration. Indications for more active interference are three:

1. Retention of urine not relieved by the single passage of a catheter.
2. Continued fever.
3. Palpable gross suppuration as recognized by the finger introduced into the patient's rectum.

The treatment of such conditions is surgical. The pus must be evacuated. The suppuration in the prostate begins in the form of multilocular miliary abscesses. These subsequently break down and coalesce. Occasionally the impatient surgeon will get into such a prostate and will not obtain any gross pus. It is of course preferable to wait until gross pus can be evacuated. Discussion of the form of operation would lead us too far afield.

### TREATMENT OF ACUTE EPIDIDYMITIS

The formula for the treatment of acute epididymitis is as follows:

1. The higher the testicles are elevated, the sooner the patient will get well. The best way to elevate them is by a good solid adhesive plaster bandage. None of the bandages to be bought in shops are sufficiently strong to achieve the elevation desired.
2. If the patient has any fever, he should be confined to bed until his temperature has been normal for forty-eight hours.
3. During the course of the epididymitis it is wiser to refrain from treatment of the urethral and internal genital inflammation.
4. If decubitus and elevation of the testicles do not promptly relieve the condition at the end of a week or so, operation according to Hagner's technic should be performed.

### TREATMENT OF GONORRHEAL RHEUMATISM

Systemic gonorrhea is a rare complication of localized gonorrhea. It is not generally appreciated that the reason for the extreme susceptibility to recurrence of joint lesions with each gonorrhea, in a patient who has once had arthritis, is a susceptibility in the joint, not in the urethra. At its onset the use of vaccines or serum may be worth while. Two or three doses of antigonococcus serum at the moment when a joint is beginning to become inflamed may abort the infection, as may also a heavy dose of gonococcus vaccine; this usually by the systemic reaction produced.

But once the joint infection is established, vaccines are not to be relied on. I have tried all the specific and nonspecific forms that have been commended to me, including horse serum and typhoid vaccines administered intravenously. If these are employed in sufficient dose to give a systemic reaction, a temporary benefit may be obtained, and occasionally a permanent benefit. But the rule is that these treatments do not appreciably influence the course of the disease.

Vesiculotomy and vesiculectomy, both in my own hands and in the hands of the members of my staff at Bellevue Hospital, have been most discouraging. Good results are only occasional and are not to be relied on either as to completeness or to permanence.

On the other hand, we are now getting excellent results from the old-fashioned treatment of the affected joints with very heavy casts, so heavy that the patient is absolutely anchored to his bed. Under such treatment it takes from six weeks to three months to cure a joint, but this compares favorably with the other treatments, which in our hands have not cured them at all.

During the course of this cast treatment it is inconvenient to bother with the urethral gonorrhea, and the treatment goes along quite as successfully if nothing is done toward curing the local focus.

### TREATMENT OF CHRONIC URETHRAL GONORRHEA

It is generally believed that the cause of chronic urethral gonorrhea is the persistence of the gonococci in the glands or scars or ulcerations about the urethra. Quite the opposite is the case. The persistence of the gonococcus is the effect of the chronic gonorrhea, not the cause of it.

Let me explain.

We may agree that gonorrhea is divided by its victims into two classes: the kind that gets well, and the kind that does not. Now, the kind that gets well is the gonorrhea in which the lesions due to the gonococcus have been so superficial as not to cause grave scars or to excite chronic catarrh. In other words, the gonococcus infection in such a urethra leaves the urethral glands and walls in a condition of good surgical drainage, wherein spontaneous recovery is possible.

On the other hand, the chronic gonorrhea, the kind that does not get well, is the gonorrhea in which the acute process has resulted in a stricture or an abscess or a grave involvement of the prostate or vesicles or other urethral glands, which are left with infiltration about the orifices of their ducts, and dilatation of their acini. In the ulcerations or scars or glands of such a canal the gonococci linger. But although the acute gonorrhea is the cause of these lesions, it is these lesions that are the cause of the chronic gonorrhea (whether the gonococci actually persist there, or whether they are replaced by other bacteria).

Such a doctrine may perhaps strike some as revolutionary; but I believe that it is a revolution in the direction of the hands of the clock, and that unless we get our minds set to look at the chronic inflammations of the urethra in this mechanistic way we shall not be in a position to treat them intelligently.

Chronic urethritis, whether or not due originally to gonorrhea, may be divided for purposes of diagnosis and treatment into two classes: the chronic urethritis in which the gonococci persists, and that in which they do not. We commonly speak of these two classes as gonococcic or nongonococcic chronic urethritis.

The treatment of these cases is the treatment of the urethral lesion plus that of the gonococci if these are present. As the presence of the gonococci often interferes with the treatment of the lesion, let us consider first the treatment of a case of gonococcic urethritis.

*Treatment of Gonococci.*—The presence of gonococci in the urethra, one may remark parenthetically, makes itself known by the fact that the urethra may not be tampered with. A chronic nongonococcic urethritis will, to be sure, resent trauma, if the trauma is violent enough. But a gonococcic urethritis will resent mild trauma and show this resentment by an acute urethritis, prostatitis or epididymitis, identified as gonococcic by the microscope and the complement fixation test.

In the treatment of gonococcic chronic urethritis, the first question to be considered is whether the patient is not in a fair way to get well of himself. It is surprising how often the consultant achieves brilliant results by simply (1) removing the irritating treatment that some enthusiastic physician has been employing; (2) improving the patient's general condition, and (3) diagnosing systemic chronic maladies, such as nephritis, diabetes or tuberculosis, that have a bearing on the patient's vitality.

If something more seems proper, we may profitably begin our acquaintance with the patient by a gentle massage of the prostate for diagnostic as well as therapeutic purposes, and by irrigating the urethra by gravity with a 1:4,000 solution of potassium permanganate daily, the massage being repeated not oftener than two or three times a week, and gently so long as there is a possibility of the presence of gonococci. If such a course of treatment does not hasten the parting guest, it is futile to continue it for an indefinite time.

Obstinate gonococci must be driven forth by more violent measures. The violence employed may be the passage of the urethroscope to locate the exact position of the lesions in the anterior and posterior urethra. More frequently one passes a moderate sized steel sound, not with the idea of overdilating the urethra, but with the belief that any foci containing gonococci are likely to be infiltrated if not sclerosed, to resist dilatation by the sound more than the surrounding canal, and therefore to be cracked and bruised by even the most gentle passage of this instrument. If the patient's urethra contains gonococci, one may expect that next day there will be a fine purulent urethritis. But one or two irrigations with potassium permanganate are likely to cure this. Then one jogs along with daily permanganate and twice a week massage of prostate (unless by chance there is no pus in this), and at the end of a week or so from the cessation of the acute relapse to the passage of the sound one passes another sound, not necessarily any larger, perhaps somewhat smaller, and solely with the idea of gently violating the refuge of the gonococcus. Three or four such treatments followed by three or four outbursts of acute urethritis should result in a cure, the first index of which is the fact that the acute urethral reaction does not follow the sounds. Of course, exceptionally such a treatment will result in an outbreak not in the urethra but in the epididymis, and if this has once occurred one may well fear to repeat the experiment. Under those circumstances I know no answer to the problem excepting that universal refuge of the physician, that is, sending the patient away to the country. Let him get a change of air, and a good rest, if his position in life permits that, and at the end of six weeks he will come home either well, or in a condition in which he can readily be rid of his gonococci.

### DIAGNOSIS OF CURE OF GONORRHEA

So much for the gonococci, though perhaps one should add a word or two as to what indicates their absence from the urethra. First of all, put a negative reaction to the sound and urethroscope test. If you can pass these instruments into the urethra and the following day in whatever pus is collected find no typical aggregation of gonococci crowding the cells, there are doubtless no more gonococci in the urethra. You should control this observation by massage of the prostate with smear negative for gonococci, and a complement fixation test. The last is sometimes a little slow to become negative, and, especially if there have been systemic complications or epididymitis, may remain positive for months after the urethral gonor-

rhea has cleared up. Nevertheless, one does not feel justified in permitting a patient to marry unless he shows no reaction to local treatment, no gonococci in his urethral and prostatic smears, and a negative complement fixation test.

Let us delay a moment to compliment the gentlemen who are able to diagnose the presence of gonococci in the urethra by the finding of a few intracellular gram-negative cocci. Scattered organisms, whether intracellular or not, whether gram-negative or not, do not mean anything. Even when the cells are packed with gram-negative organisms, the certainty is not complete. These gram-negative organisms packing the cells may be staphylococci.

You note my doubts, both of the microscope and of the complement fixation test. We prefer that they should all agree, but we found our opinion on the clinical features of the case. Should clinic and laboratory disagree, the laboratory may be defied to cultivate the gonococcus. Positive gonococcus culture is positive proof of the presence of gonococci, and takes precedence over all other evidence. Unfortunately, for technical reasons it is extremely difficult to obtain this evidence; and if the clinic and laboratory agree, there is no need to attempt it.

On the other hand, should clinic and laboratory disagree and the cultivation of gonococci prove negative, this does not show that the patient has not gonococci in the urethra, but leaves the dispute open until the lapse of time shall reconcile it.

### PRINCIPLES GOVERNING THE TREATMENT OF NON-GONOCOCCIC CHRONIC URETHRITIS

The patient is slow to recognize the difference between a chronic urethritis due to gonococcus and one from which the gonococci have disappeared or in which they have never been present. But to the hygienist or to the physician the difference is of the last importance. For purposes of treatment it is essential, first of all, to establish the presence or absence of gonococci. Once we are sure these are *not* present (as, indeed, they are not in the majority of truly prolonged cases), we may proceed to the treatment of the lesions which, as we have said above, are of the essence of chronic urethritis, undisturbed by the presence of the gonococcus.

Lesions of chronic gonorrhea are usually multiple and complex. For purposes of analysis they may be divided into three types, respectively, the lesions of the mucous membrane, the lesions of the submucosa, and lesions of the glands.

*Lesions of the Mucous Membrane.*—The mucosa may be infiltrated, eroded, ulcerated or the seat of granulations.

Infiltration is interesting chiefly as affecting the submucosa, and will be dealt with in that connection.

Erosions and ulcerations are revealed by the urethroscope, usually at points in the anterior urethra where there is considerable infiltration. The treatment of them is that of the infiltration.

Exuberant granulations are not often seen in the anterior urethra, but the posterior urethroscope commonly discloses them on the floor of the urethra in the region of the verumontanum. They have often been described as polypi or papillomas, and are usually present in chronic posterior urethritis, seemingly as an index of the catarrhal condition of the glands emptying into the posterior urethra.

*Lesions of the Submucosa.*—Infiltration is the gonococcic lesion of the submucosa. It may extend to the surrounding tissue, and in an acute condition result in phlegmon, abscess and gangrene. Under ordinary circumstances of chronic urethritis, the infiltration causes redness and perhaps erosion or ulceration of the mucosa of the urethra, and destroys the elasticity of the anterior portion of the canal so that the bulbous bougie detects a hitch as it passes over the infiltrated region. Such infiltration, existing for years, finally results in scar formation. Let us remember, however, that though scar is the result of chronic infiltration, the infiltration may be considerable, extensive and extremely obstructive without the formation of any scar. Consider the difference between a so-called traumatic stricture and a gonorrheal stricture. The former is all scar, and by definition cannot be treated by sounds; the scar will not stretch. But the gonorrheal stricture contains relatively little scar, and consequently it can, as we say, be stretched; i. e., it can be softened by the massage of sounds if that massage is conducted with such gentleness as to excite the absorption of the infiltration. There is no more excuse for brutality in the passage of sounds than for brutality in the passage of catheters. There is no more advantage in tearing a stricture open with a sound than in breaking up the so-called adhesions in an inflamed joint. The inflammatory lesions in either case can be better managed by gentle manipulation; the cicatricial lesion cannot be cured by mere brutality.

*Lesions of the Glands.*—Certain practitioners especially interested in urethroscopy recognize and treat inflammatory lesions of the glands of the anterior urethra to their satisfaction through the urethroscope. It has not been my good fortune, however, either to note such lesions frequently, or to have any success with the treatment of them excepting as they form one feature of the infiltration of the surrounding mucous membrane. This infiltration naturally obstructs the ducts of the glands and causes retention of purulent secretion within them.

In the posterior urethra, however, the prostate and seminal vesicles form a special problem of drainage in complicated gland structures. The infiltration of their ducts causes retention on a grand scale which we treat by the familiar method of prostatic massage.

Many of you, I am sure, have asked yourselves what prostatic massage accomplishes. It empties from the prostate a secretion which the microscope shows to be more or less purulent. It empties this secretion apparently rather less efficiently than does an emission or a constipated movement of the bowels. It is beneficial to some patients, though often not nearly so beneficial as regular sexual intercourse. The necessity, social or hygienic, for prohibiting sexual intercourse to sufferers from chronic infections of the prostate is one of the reasons why many of them are so hard to cure. We put the internal sexual organs into the most unphysiologic situation possible. We endeavor to bring the internal genitals back to a normal condition by the occasional pressure of a finger introduced into the rectum.

The elements of the problem have been suggested—the social and hygienic ones, of course, take precedence over the dictates of physiology. Nevertheless, the incongruities of the situation should be recognized, and dealt with as honestly and intelligently as possible in each individual case.

Massage should usually be gentle, for the gland is by definition inflamed. Occasionally, however, more severe massage will succeed when the gentler pressure fails. Generally speaking, there is no need to rub the patient's prostate in a way that scandalizes his nerves.

Prostatic massage is preferably not repeated oftener than twice a week.

In the foregoing paragraphs what has been said of the prostate applies to the seminal vesicles.

### TREATMENT OF NONGONOCOCCIC CHRONIC URETHRITIS

Let it be noted that the essential pathologic lesion of the chronically inflamed urethra is an infiltration of its submucosa. On this depend the ulcers and granulations of the mucous membrane as well as the retention of pus in the urethral glands, and from it results the scar which is stricture.

The essential treatment of chronic urethritis is therefore dilatation—dilatation which shall be made to simulate massage as nearly as possible—dilatation applied both to the anterior and to the posterior urethra so far as the inflammation affects both portions of the canal. Dilatation should not cause bleeding; for bleeding is evidence of laceration, laceration is the occasion of infiltration, and infiltration is the lesion that we are seeking to relieve.

Dilatation should not attempt to stretch scar tissue, because scar tissue cannot be stretched.

The anterior urethra may profitably be dilated to from 28 to 32 F.; the posterior urethra (by means of the Kollman dilator) to from 33 to 38 F. The intervals between treatments should be from five to ten days.

The application of injections and irrigations, however antiseptic, to the surface of the urethral mucosa can have but little effect on its pathologic processes. A mild urethral discharge may be controlled by a mild injection, but it will be noted that for this purpose astringent injections of zinc sulphate and similar substances are far more efficacious than are the antiseptics. An astringent that will produce an infinitesimal diminution in an infinitesimal urethral discharge will cheer the patient, though it will not materially change the lesion.

It is customary to use such antiseptics, following treatment by sounds and massage. They may be used with discretion. If the treatments are gentle, it is often quite as well not to introduce any antiseptics into the urethra; but when beginning with a patient, or if there is any possibility of a reaction following the treatment, an antiseptic which washes out the major number of bacteria and tends to diminish the vitality of others is worth while.

Massage of the prostate and seminal vesicles is the best substitute the physician can offer for the processes of nature, and has the added advantage of being conducted in a relatively calm spirit. The need of rubbing the prostate and seminal vesicles until the last pus cell has disappeared from them has never been clear to me. It is often possible after a short time to reduce the amount of pus from these organs to such an extent that clumps of pus cells are uncommon in the expressed secretion. When this state is reached, patients may be dismissed, to return for observation several months later. If conditions have grown no worse, they may be disregarded.

The urethroscopic treatment of granulations in the posterior urethra by the application of chemicals has seemed to me most useful in cases that resist treatment by dilatation. But the urethroscopic treatment is not to be considered one of choice to replace dilatation—dilatation is always of the essence of the treatment of chronic urethritis.

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## DUODENAL DIVERTICULUM WITH PYLORIC ULCER *

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The most recent contributions on the subject of duodenal diverticula are by Secher,[1] Basch,[2] Ritchie and McWhorter,[3] and Siegrist.[4] Secher reports the case of a diverticulum of the stomach found at necropsy, and one of the duodenum also discovered after death, the latter being situated near the papilla of Vater. The diverticulum found by Basch was at the beginning of the third part, while that described by Ritchie and McWhorter was in the first portion of the duodenum, and was further associated with a duodenal ulcer. The diverticulum of Siegrist, discovered at operation, was near the papilla of Vater, as was that of the first mentioned author. Siegrist quotes Linsenmayer, who states that "duodenal diverticula are found in two typical places: in 8 per cent. at the beginning of the duodenum and in 92 per cent. in the region of the papilla of Vater," and who also asserts that "the first are always congenital." The case here reported was like that of Ritchie and McWhorter, situated in the first part of the duodenum. In their search of the literature they could find reports of only seven such cases, as against ninety diverticula distributed in the second and third portions. This rarity makes the report of such cases of rather academic than clinical interest and importance, and it is further true that they may function normally, as shown in the present case. That applies, however, only to true diverticula, as opposed to the false variety.

### REPORT OF CASE

*History.*—Nov. 6, 1917, L. B., a man, aged 32, entered the service of Dr. Frank J. Sladen in the Henry Ford Hospital, Detroit, complaining of pain in the stomach. His family history was negative. He had acquired syphilis in about 1909, and was given mercury for a year and then one intramuscular injection of arsphenamin. A blood Wassermann test a year before and also on his admission to the hospital was negative; likewise, spinal fluid Wassermann, cell count, Pandy and colloidal gold tests were negative. Finally, there were no clinical signs of syphilis. About the time of the syphilitic infection the patient was inclined to excessive alcoholism, but stopped drinking four years later. The present illness began three years before, with pains in the lower abdomen and obstinate constipation. After a short time epigastric distress appeared, with nausea, vomiting and pain, which was chiefly referred to the right lower abdominal quadrant and was related to meals. The symptoms increased steadily in frequency and severity up to the time of admission, when he was partially incapacitated for work. Except for very slight

* From the service of Dr. Frank J. Sladen, Department of Medicine, Henry Ford Hospital, Detroit.

1. Secher, K.: On Diverticula in the Stomach and Duodenum, Hospitalstidende **60**: 582 (June 13) 1917.
2. Basch, Seymour: Diverticula of the Duodenum, Am. J. M. Sc. **153**: 833 (June) 1917.
3. Ritchie and McWhorter: Duodenal Diverticula, Surg., Gynec. & Obst. **25**: 485 (Nov.) 1917.
4. Siegrist, Hans: A Contribution on the Case Reports of Duodenal Diverticula, Cor.-Bl. f. Schweiz. Aertze. **49**: 47 (Jan. 11) 1919.

tenderness in the epigastrium and moderate loss of weight, the physical examination was negative. Repeated urinalyses while on the medical service were quite negative; red and white blood cell counts, hemoglobin and differential counts were normal; lastly, chemical and microscopic examinations of the stool and gastric contents were normal.

*Roentgenoscopy.*—Two series of roentgen observations were carried out. In the first, started the day after admission, the stomach functioned normally, showing no filling defect or pain on pressure over the antrum, pylorus or duodenum. The latter had a small caliber in its first portion, from the lower wall of which, within an inch of the pylorus, the shadow of a saclike process, almond in size, was seen extending downward. When first seen the sac was described as an accessory pocket or duodenal diverticulum. It remained filled throughout the immediate examination and could not be emptied by manipulation over the abdomen, during which the deepest pressure was permitted without complaint of pain. A minimal amount of the opaque meal remained in the stomach at the five hour examination. At this time, as well as two hours later, the sac described above was not seen. After twenty-four hours, there was presented the unusual spectacle of a completely inverted cecum and ascending colon, the cecum beginning high in the right hypochondrium and extending down into the ascending colon to meet the transverse colon near the right iliac spine. Immediately under the right costal margin a pencil shaped shadow, about 3 inches in length, extended from the upper end of the cecum medially toward the pylorus. This was of course the appendix, and it had a break in continuity in its center with some dilatation distally. It was freely movable and not sensitive to pressure. The transverse colon was a little low throughout, but ascended a little on approaching the splenic flexure. The appendix remained filled for more than seventy-two hours, maintaining always its high position. About a week later, a second series was started, a thin emulsion of barium being used this time, and perhaps better visualization being obtained than in the first series. The picture seen then varied from the first series only in that the stomach was a trifle slow in emptying, and the pouch in the duodenum seemed larger, approximating the size of a silver dollar. At this examination the sac filled and emptied synchronously with the rest of the duodenum, as each wave of barium passed from the stomach; it was, moreover, quite easy to obliterate it by pressure on the abdomen. The interpretation of the sac at this stage was admittedly difficult, probably because of the rarity of all conditions or lesions which would be considered in the differential diagnosis. However, in an attempt to correlate the symptoms with the roentgen findings, it was thought that the sac might be a penetrating ulcer, although in retrospect the balance of evidence lay greatly in favor of a diverticulum. On the basis, therefore, of chronic appendicitis and suggestive evidence of peptic ulcer, operation was advised and performed by Dr. R. D. McClure, November 17.

*Operation.*—This description is taken from the notes of the operator, who found many adhesions between the duodenum, liver and gallbladder, the latter being otherwise normal. The inverted cecum and ascending colon were seen just as in the fluoroscopic report. There were no gross adhesions of the appendix, but it was found to be injected and distended, and contained a concretion. At the upper border of the pylorus there was a puckered area which seemed to be the base of an ulcer surrounded by induration, while along the lower border of the duodenum, just distal to the pyloric vessels, there was a pouch, larger in diameter than the duodenum itself, extending down directly over the surface of the pancreas. This pouch could be reached and considerably distended by passing the finger into it through the pyloric ring, and it had a fairly well defined neck. The pancreas was much indurated. In the choice of operative procedure, it was decided best under the circumstances to resect the pyloric end of the stomach and first portion of the duodenum, including the diverticulum, and perform a posterior gastrojejunostomy, and of course appendectomy. This was done, and while there was some bleeding which occurred in freeing the adhesions to the pancreas, the patient stood the anesthetic well and left the operating room in good condition, having lost comparatively little blood.

*Postoperative Course.*—The outstanding features were gradual increase in pulse rate, respirations and temperature, the latter reaching its maximum, 103.4 F., the fifth day. There was no vomiting after the second day, but later, on repeated gastric lavage, there was obtained coffee-ground material with a fecal odor. Restlessness and abdominal distention, which could not be relieved by the usual measures, increased. There was no leukocytosis and no evidence of pulmonic complications until a pleural friction was heard on the day of death. With the appearance of albumin and casts in the urine, the blood urea nitrogen content was found to be 86.9 mg. per hundred c.c. of blood. After passing from delirium into a state of stupor, the patient died the fifth day after operation. Necropsy was refused.

Microscopically, the duodenal diverticulum was found to contain all the layers of a normal duodenum, including the two types of glands. The dimensions were 3.5 cm. long by 2.5 cm. in diameter. The pathologic diagnosis of the appendix was chronic appendicitis.

## COMMENT

This case is of interest chiefly from the standpoint of its rarity, as it represents the ninth case on record of diverticulum of the first portion of the duodenum. The structure of the diverticulum was that of a normal duodenum, and in contrast to the case described by Basch in which the barium was retained in the sac for more than ninety-six hours, there was no delay in emptying, which in itself suggested that this diverticulum did not enter into the production of symptoms. Secondly, inversion of the cecum and ascending colon is, according to Piersol,[5] distinctly rare. It is explained by arrest in migration from the fetal position, and may be influenced by a short ascending colon, as was the case here. More recently, Roberts[6] comments on the comparative rarity as well as the clinical importance of the failure of the colon to rotate. Finally, while no positive assertion is possible regarding the cause of death because of the failure to get permission for necropsy, among other things one interesting possibility was suggested: that of intoxication from obstruction or collapse of the duodenum. The extensive investigations by Whipple[7] and his associates have shown that there is a proteose intoxication in intestinal obstruction, which is accompanied by prostration, vomiting, diarrhea, rapid pulse and respirations and disturbance of the nonprotein elements of the blood, usually with a high urea nitrogen. In support of this theory as being the cause of death of our patient, the most definite evidence was the marked increase in urea nitrogen with negative evidence of other complications.

301 East Franklin Street.

5. Piersol: Human Anatomy, Philadelphia, **2**: 1663, 1911.
6. Roberts, Dudley: The Association of Obscure Abdominal Symptoms with Non-Rotation of the Colon, Am. J. Surg. **34**, No. 6 (June) 1920.
7. Whipple, G. H., et Als: J. Exper. M. **23**: 123 (Jan.) 1916; **23**: 717 (June) 1916; **25**: 461 (March) 1917; **29**:397 (April) 1919.

**Women Magistrates for Juvenile Courts.**—Women magistrates for courts dealing with children's cases are advocated in a report just issued by the British Board of Education, according to information received by the Children's Bureau of the U. S. Department of Labor. The report recommends that every juvenile court, not only in the cities but also in the rural districts, which has to deal with any considerable number of offenders should have a children's probation officer. His duty would be to supervise cases himself and to secure the cooperation of teachers, scout masters, officers of boys' and girls' clubs, and other social organizations so that every child in his charge should be introduced to one or more of these agencies.

# A CASE OF DIABETES MELLITUS AND MYELOGENOUS LEUKEMIA*

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The combination of diabetes mellitus and leukemia in the same individual has already been reported in two instances. I describe a third case, not only to call further attention to the rarity of coincidence between these two diseases, but also to record observations on a case of diabetes mellitus that was treated by abdominal roentgen-ray exposures and usual dietetic treatment.

In 1892, Rebitzer [1] reported the case of a man, aged 56, with a history of diabetes which had begun six years before the patient came under observation. Four months before entry to the hospital he had noticed the development of a splenic tumor. At entry the blood had 600,000 white corpuscles per cubic millimeter, and the urine contained much sugar. The patient died in typical diabetic coma eight days later. The necropsy revealed enlarged lymph nodes and a spleen which appeared characteristic of leukemia.

In 1905, Schwarz [2] reported the case of a boy, aged 13 years, who presented an enlarged spleen, a white count of 344,000 cells per cubic millimeter of blood, and a urine which contained 5 per cent. of sugar. From the patient's history it seemed probable that the leukemia was of longer duration than was the diabetes. The patient died after nine months' observation, and at necropsy gave evidence of pulmonary tuberculosis as well as of myelogenous leukemia.

## REPORT OF CASE

*History.*—M. W. (East Medical No. 23568), a married white woman, aged 40, entered the Massachusetts General Hospital, March 20, 1920. She was born in Maine, but had lived in Massachusetts during most of her life. Her family history and habits were unimportant. Her general health was unusually good, except that she had been pregnant four times during twenty-five years of married life and had had three stillbirths. One child, however, was living and normal. In November, 1919, she had a sharp attack of tonsillitis, which kept her in bed for four or five days. At about that time she noticed that she had lost a great deal of weight. She consulted a physician at once, who told her that she had sugar in her urine and prescribed a diet low in carbohydrates. Since then she had had a trace of sugar in her urine on repeated examinations, but no other symptoms until recently. Last January she noticed a mass in her upper abdomen which was not tender and which she did not think was growing rapidly. About March 1 she became unusually thin and complained of polyuria and nocturia so that she began to drink about 2 gallons of water each day and to urinate four or five times at night. She finally returned to her physician, who advised her to enter the hospital for treatment.

*Physical Examination.*—March 20, routine examination was negative except for a blowing systolic murmur heard over the entire precardia, and for the abdomen, which was notably full. The left side below the umbilicus was filled by a firm mass concentric in shape, the right border of which was notched, and which moved with respiration. The white blood count was 147,000, the cells of which were mainly of the myelocytic type. The red cells showed a well marked secondary anemia. The urine contained 5 per cent. of glucose. The diagnosis of myelogenous leukemia and diabetes mellitus seemed clear. It was decided to treat the diabetes by diet, and the leukemia by roentgen ray. The patient was discharged greatly relieved after sixteen days in the hospital.

*Treatment and Course.*—It seemed of interest to attempt to follow the effect of abdominal roentgen rays on the pancreas in this case, bearing in mind the possibility that rays over the spleen might penetrate to the pancreas and stimulate or inhibit its internal secretion. For this purpose the patient was put in bed during her stay in the hospital and given a constant diet of 60 gm. of protein, 25 gm. of carbohydrate and 57 gm. of fat. This afforded approximately 1.25 gm. of protein per kilogram of body weight daily, and 20 calories. This diet was supplemented each day by 5 gm. of sodium chlorid, 600 c.c. of broth, and 300 gm. of thrice cooked vegetables.

The data obtained from the study of this case are tabulated herewith.

FINDINGS IN CASE OF DIABETES MELLITUS AND MYELOGENOUS LEUKEMIA*

| Date | Body Wt., Kg. | Urine | | | | Blood | | | | | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Volume | Nitrogen | Sugar | Sodium Chlorid | Nitrogen | Urea N. | Sugar | White Cell Count per C.Mm. | Basal Metabolic Rate | |
| 1920 March: | | Gm. per 24 Hours | | | | Mgm. per 100 Cc. | | | | | |
| 17 | .... | 770 | 6.42 | 27.40 | 0.65 | | | | | | |
| 18 | .... | 500 | 4.62 | 15.00 | 0.55 | | | | | | |
| 20 | 41.0 | 700 | 7.98 | trace | 1.09 | 43 | 14 | 280 | 147,200 | .... | |
| 21 | .... | 835 | 9.20 | trace | 0.83 | .. | .. | ... | 138,400 | +45 | |
| 22 | .... | 950 | 8.25 | trace | 4.07 | 32 | 19 | 220 | 133,000 | .... | Roentgen-ray treatment of spleen |
| 23 | .... | 1100 | 7.43 | trace | 2.97 | | | | | | |
| 24 | .... | 1130 | 7.06 | trace | 3.39 | 37 | 19 | 210 | 100,000 | .... | Roentgen-ray treatment of spleen |
| 25 | .... | 970 | 7.26 | trace | 2.70 | .. | .. | ... | 72,000 | | |
| 26 | .... | 1140 | 8.56 | neg. | 4.55 | .. | .. | ... | ..... | +27 | Roentgen-ray treatment of spleen. |
| 27 | 41.0 | 850 | 7.33 | neg. | 4.08 | 34 | 13 | 190 | 67,400 | | |
| 29 | .... | 1110 | 8.80 | neg. | 7.10 | .. | .. | ... | 44,000 | .... | Roentgen-ray treatment of spleen |
| 30 | .... | 930 | 8.30 | neg. | 6.88 | 34 | 11 | 150 | 41,000 | | |
| 31 | .... | 1060 | 8.85 | neg. | 8.85 | | | | | | |
| April: | | | | | | | | | | | |
| 1 | .... | 2060 | 8.90 | neg. | 9.06 | .. | .. | ... | 26,000 | .... | Roentgen-ray treatment of spleen |
| 2 | .... | .... | .... | ..... | .... | 30 | 8 | 130 | ..... | +4.5 | |

* The basal metabolic rates were determined by Dr. J. H. Means; the roentgen-ray treatment was under the direction of Dr. George Holmes.

## COMMENT

The glycosuria cleared up promptly, disappearing after nine days of a fixed low caloric diet, and was accompanied by a rapid fall in the glycemia. Acidosis did not develop. There was no reason for believing that the five roentgen-ray exposures of the splenic region had any demonstrable effect on the internal secretion of the pancreas.

As was characteristic of myelogenous leukemia, the basal metabolic rate was increased, while the white cell count was high and returned to normal as the white cell count diminished. The lowering cell count and basal metabolic rate were accompanied by a diminution in the size of the spleen, although this organ was palpable at the time of the patient's discharge from the hospital.

Sodium chlorid, apparently, was not well excreted when the patient was first observed, but later was

* From the Medical Clinic of the Massachusetts General Hospital.

1. Rebitzer: Prag. med. Wchnschr. **8**: 356, 1892.
2. Schwarz: Wien. med. Wchnschr. **55**: 413, 1905.

excreted in amounts comparable to that ingested. Whether or not the roentgen ray stimulated the excretion of sodium chlorid is uncertain.

On the whole, this case shows that the two independent diseases myelogenous leukemia and diabetes mellitus rarely occur in the same individual. In this case the diabetes was mild and responded to dietetic treatment in usual fashion, and was not appreciably influenced by roentgen-ray exposure of the splenic region, which had a markedly beneficial effect on the leukemia.

## THE PRECIPITIN TEST FOR GLOBULIN IN THE ARACHNOID FLUID IN GENERAL PARALYSIS *

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AND
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In a paper before the Chicago Pathological Society last June we pointed out that the arachnoid fluid in general paralysis gives a noticeably strong reaction with antihuman rabbit serum.[1] Antihuman rabbit serum is the serum of a rabbit immunized with human serum, as usually practiced in order to secure potent specific precipitin serum.[2] By determining the highest dilution of arachnoid fluid that gives a definite precipitate with an antiserum by the contact or layer method after one hour at room temperature, a definite index of the amount of protein in a fluid is obtained. We found that an antihuman serum of a titer of 1,000, that being the highest dilution of human blood in which it would cause a definite precipitate after one hour at room temperature, would cause a precipitate in what we accepted as normal arachnoid fluid diluted on an average about 1:3.7 with physiologic sodium chlorid solution, while it would form a precipitate in the arachnoid fluid of general paralysis in dilutions of the fluid on an average of 1:12.6 of salt solution.

Since a considerable part at least of the protein in the arachnoid fluid in general paralysis consists of globulins, we have made a special study of the action of specific antiglobulin and anti-albumin precipitins on arachnoid fluids, and results that seem to be of some practical value have been obtained. Human serum-albumin and human globulins, prepared in the usual way under the supervision of Prof. F. C. Koch in the Department of Physiological Chemistry and Pharmacology of the University of Chicago, were used as antigens. Rabbits were injected intravenously at four day intervals with increasing doses, usually 2, 4, 6 and 8 c.c. of the respective solutions, each representing twice the original volume of serum. The animals as a rule yielded serum of adequate potency about the seventh day after the last injection. In general this method is satisfactory, with the exception of a rather high death rate among the globulin rabbits after the third and fourth injections. We injected rabbits also with mixed arachnoid fluid from general paralytics, the quantities being 4, 6, 8 and 10 c.c., and obtained in this way as well a serum with specific antiglobulin precipitins.

As the antigens used in no case consisted of a single pure protein, the antiserums naturally contained precipitins for both serum albumin and the globulins; but the serum of a rabbit, injected with globulin solution, as a rule acts in higher dilutions of globulins than of serum albumin. That is they contain more globulin precipitin than albumin precipitin. This is true, too, of the serum of rabbits injected with the arachnoid fluid of general paralysis. In the case of the serum of rabbits injected with globulin solution, the precipitin present for albumin may be removed by precipitation with albumin solution.

HIGHEST DILUTION OF ARACHNOID FLUIDS IN SALT SOLUTION GIVING PRECIPITATE WITH VARIOUS ANTISERUMS BY CONTACT OR LAYER METHOD AFTER ONE HOUR AT ROOM TEMPERATURE

| Antiserums | | | | Arachnoid Fluids | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Titers | | | General Paralysis (5 cases) | | | | | Epilepsy (5 cases) | | | | | Dementia Praecox (6 cases) | | | | | | Normal (12 persons) | | | | | | | | | | | |
| Nature | Human Serum | Human Albumin Solution* | Human Globulin Solution* | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Antiglobulin† | 500 | 0 | 256 | 16 | 32 | 128 | 64 | 128 | 2 | 2 | 1 | 2 | 2 | 2 | 4 | 2 | 4 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | — | — | — | — | — | — |
| Anti-albumin | 1,000 | 600 | 15 | 32 | 16 | 32 | 32 | 32 | 32 | 16 | 16 | 16 | 16 | 4 | 4 | 8 | 8 | 4 | 4 | 4 | 4 | 2 | 2 | 4 | 8 | 4 | 8 | 8 | 8 | |
| Antihuman-serum | 1,500 | 15 | 250 | 16 | 16 | 128 | 64 | 128 | 4 | 4 | 2 | 4 | 4 | 8 | 4 | 8 | 4 | 4 | 8 | 4 | 8 | 4 | 2 | 4 | 4 | 8 | 8 | 8 | 4 | |
| Anti-arachnoid fluid, from general paralysis | 3,000 | 15 | 1,500 | 128 | 256 | 512 | 512 | 512 | 8 | 8 | 8 | 16 | 8 | 16 | 8 | 8 | 8 | 4 | 4 | 4 | 4 | 4 | 8 | 8 | 16 | 8 | 16 | 16 | 8 | |

* The albumin and globulin solutions represent each twice the original volume of the serum from which they were obtained.
† Albumin precipitins removed by specific absorption.

We have found by the study of arachnoid fluids from various sources — general paralysis, epilepsy, insanity, epidemic poliomyelitis, normal persons, etc.— with anti-albumin and antiglobulin serums prepared as outlined, that in the fluid of general paralysis both albumin and globulins are increased, but principally the globulins, while in the fluid of epilepsy the increase in protein noted in our first article [1] seems to be in the albumin. The details of the tests will be published later. Antiglobulin serum obtained either by injections of human globulins—we propose to study the effects of using the separate globulins later—or of paralytic arachnoid fluids have caused precipitates in paralytic fluids diluted from sixteen to 512 times with salt solution and even higher, while in fluids from other sources they caused precipitates only in lower dilutions, dilutions of from two to eight or sixteen times, the only exceptions so far in our experience being fluids from frankly inflammatory conditions. This statement covers the results of the testing of about fifty different arachnoid fluids from undoubted cases of general paralysis and a large number of fluids from other conditions. We have had no opportunity to study the arachnoid fluid of locomotor ataxia, cerebral syphilis in the usual sense, multiple sclerosis, etc. The general

* From the John McCormick Institute for Infectious Diseases and the Cook County Psychopathic Hospital.

1. Hektoen, Ludvig, and Neymann, C. A.: The Precipitin Index of the Cerebrospinal Fluid with Antihuman Serum, Tr. Chicago Path. Soc., to be published.

2. Hektoen, Ludvig: The Precipitin Test for Blood, J. A. M. A. 70:1273 (May 4) 1918.

character of the results with different kinds of antiserum is illustrated in the accompanying table, which shows also that the most striking results, so far as general paralysis is concerned, have been obtained with the serum of rabbits injected with the arachnoid fluid from general paralytics.

On account of its simplicity, this test is well adapted to routine use. By using small tubes of a diameter of 5 mm. or so, only a small amount of antiserum needs to be placed under each dilution of arachnoid fluid. It is essential, of course, that the fluid be drawn without admixture with blood.

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## ACCURACY OF THE SCHICK REACTION

### INFLUENCE OF VARIATIONS IN DIPHTHERIA TOXIN CONTENT IN SCHICK OUTFITS

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The rapid increase in the popularity of the Schick reaction as a method for determining the susceptibility or immunity of individuals to diphtheria is based on two factors: (1) the great reliability of the test, and (2) the ease with which it can be carried out.

Dr. Park and I have repeatedly emphasized the need of observing with care three points that are absolutely essential if the test is to be reliable. They are: (*a*) a standard toxin dilution of proper strength; (*b*) accurate technic in the injection by means of a good syringe and a suitable fine needle, and (*c*) an accurate interpretation of the reaction.

### RELIABILITY OF THE SCHICK TEST

Accumulating experience and reports from many sources, and our own experience at the Willard Parker Hospital and in various other institutions during a period of seven years, have established the Schick reaction as a most valuable clinical test for determining immunity from diphtheria or susceptibility to the disease. Most striking, indeed, have been the results noted at the Willard Parker Hospital. Of several thousand scarlet fever patients, more than 2,200 had given a negative Schick reaction on admission to the institution. No prophylactic injections of antitoxin were given to these patients, as they were considered to be immune to diphtheria. They were carefully observed and, it is interesting to note, not one of these patients developed undoubted clinical diphtheria even though they were subsequently exposed to cases of diphtheria developing among some of the Schick-positive patients; indeed, many of them had become temporary carriers of virulent diphtheria bacilli during their stay in the hospital.

The great reliability of the test is further emphasized by our recent experience in several institutions in which outbreaks of diphtheria had occurred. The Schick test was made on all the children of the institutions, and only the positive reactors were passively immunized with antitoxin. In each institution the outbreak was thus promptly controlled, and no cases of diphtheria developed among the Schick-negative children, although they had received no immunization with antitoxin.

It is important from a practical standpoint to remember that individuals who are carriers of virulent or nonvirulent diphtheria bacilli may develop a septic sore throat due to the streptococcus or some other organism. Such carriers as a rule give negative Schick reactions and are therefore immune to diphtheria. The presence of a lesion resembling a diphtheritic exudate in these individuals, associated with a positive throat culture, would be sufficient evidence to many observers that the lesion was diphtheria. In several such patients, however, in whom we were certain that the negative Schick reaction was correct, antitoxin was not injected, although we were prepared to give it if the symptoms became worse. Repetition of the Schick test again gave negative results. Specimens of blood were taken from these patients and their antitoxin content determined. All these patients had from 1/10 to 2 units of antitoxin per cubic centimeter of blood serum which, according to von Behring, would be from ten to 200 times as much as was necessary to protect the individuals from diphtheria. Antitoxin, however, should always be given when the suspicion of the presence of diphtheria is strong, because there is always the possibility that there has been an error in the technic of the test or in its reading, and we are not justified in taking unnecessary risks. Failure of improvement in such a case after the administration of antitoxin will generally show that we are dealing with a nondiphtheritic sore throat in a carrier of diphtheria bacilli.

### SOURCES OF POSSIBLE ERROR CONNECTED WITH THE SCHICK TEST

I have been informed by various observers of cases in which patients giving negative Schick reactions subsequently developed diphtheria. I firmly believe that in such cases one or more of the three factors enumerated above, i., e., the strength of the toxin, the technic of the injection, or the interpretation of the reaction, had been at fault. In several instances we were able to show that the technic itself was inaccurate. Errors in the reading or the interpretation of the test accounted for some of the poor results. At times a Schick reaction was read as negative after a superficial observation at the end of twenty-four or forty-eight hours, when a later reading would have disclosed a positive reaction. This was indicated by the definite pigmentation remaining at the site of the test and seen at a subsequent examination. Such pigmentation should have been looked for and would probably have been found in some of the cases that were reported as clinical diphtheria developing in Schick-negative children. To interpret and identify the pseudoreaction, moreover, it is necessary to make a control test with the heated toxin as I have recommended.[1] When a large number of very young children are to be tested, the control could often be omitted for the sake of economy in time, in view of the relative infrequency of the pseudoreaction in this age group.

The first essential condition for a reliable Schick test is to have a standard toxin dilution of proper strength. It is possible for the individual observer to guard against faulty technic and inaccurate reading of the reaction, but he is forced to depend on the outfits supplied by the various laboratories for a suitable toxin preparation. It is important to realize that individuals who give a strongly positive Schick reaction with standard dilutions of toxin may give only a

1. Zingher, Abraham: Methods of Using Diphtheria Toxin in the Schick Test and of Controlling the Reaction, Am. J. Dis. Child. **11**: 269 (April) 1916. The Pseudoreaction in the Schick Test and Its Control, J. A. M. A. **66**: 1617 (May 20) 1916.

faintly positive or *a negative* reaction with weaker dilutions.

Table 1 illustrates the effect of three different dilutions of toxin on groups of children who had given

TABLE 1.—EFFECT OF THREE DILUTIONS OF TOXIN*

| Dilutions of Diphtheria Toxin | Groups of Children 1 | 2 | 3 |
|---|---|---|---|
| 1. Standard dilution, 0.2 c.c. = 1/50 M. L. D. | + | ± | ± |
| 2. One-half standard dilution, 0.2 c.c. = 1/100 M. L. D. | ± | ± or − | − |
| 3. One-quarter standard dilution, 0.2 c.c. = 1/200 M. L. D. | ± or − | − | − |

* The signs used in this and the following tables should be read thus: +, strongly positive Schick reaction; ±, moderately positive Schick reaction; ±, faintly positive Schick reaction; −, negative Schick reaction.

strongly positive, moderately positive and faintly positive reactions, respectively, with a standard dilution. Variations in the reactions shown by the same individuals to apparently the same dilutions of toxin can thus be explained by differences in the strength of the dilutions used in the test.

My attention was recently drawn to the possibility that some of the outfits supplied by commercial laboratories were below standard strength. A private physician reported that he had used a Schick outfit from a commercial laboratory on three children in one family and had obtained negative reactions in all the children. He suspected that something was wrong with the toxin dilution, and retested the three children with an outfit from the Research Laboratory. Two of the children now gave positive reactions and one a negative reaction.

TABLE 2.—RESULTS WITH OUTFITS OF COMMERCIAL LABORATORY 1

| Schick Outfits | Children Tested A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Control (Research Lab.) | + | + | + | ± | ± | ± | ± |
| 1 | − | − | − | − | − | − | − |
| 2 | − | − | − | − | − | − | − |
| 3 | ++ | + | ++ | + | ± | + | ++ |
| 4 | + | + | + | ± | ± | + | + |
| 5 | + | + | Not tested | + | ± | + | Not tested |

The importance of this observation prompted me to ask several commercial laboratories for a number of Schick outfits, which they manufacture for public sale, and to test them. These outfits were secured directly from the manufacturers so as to avoid the possibility that the outfits had deteriorated while in the hands of the retailer. A series of children who had given positive Schick reactions with the outfits furnished by the Research Laboratory was used for the tests. All the outfits from one laboratory were tested simultaneously on the same children, and at the same time a control test was made with one of the outfits of the Research Laboratory.

The results noted were very interesting and are of considerable importance in showing one of the great possible sources of error in the results of the Schick test.

### RESULTS OBTAINED WITH COMMERCIAL LABORATORY OUTFITS

In reading Table 2 and the subsequent tables the vertical columns indicate the different reactions given by the various outfits on the same child, and the horizontal columns the reactions shown by one outfit on various children.

Table 2 shows that Outfits 1 and 2 were inactive and gave negative reactions in all children. It is important to note that not even a faintly positive reaction was noted in those children who had shown a strongly positive reaction with the control test. Outfit 3 gave reactions about twice as strong as those noted with the control test, while Outfits 4 and 5 gave reactions similar to those shown with the control test.

Table 3 shows that Outfit 1 gave a moderately positive reaction in one child showing a strongly positive reaction with the control test, and faintly positive reactions in two children giving moderately positive reactions with the control outfit.

Outfit 2 gave a faintly positive reaction in the child showing a strongly positive reaction with the control test, and very faintly positive reactions in the two

TABLE 3.—RESULTS WITH OUTFITS OF COMMERCIAL LABORATORY 2

| Schick Outfits | Children Tested A | B | C |
|---|---|---|---|
| Control (Research Lab.) | + | ± | ± |
| 1 | ± | ± | ± |
| 2 | ± | ± | ± |
| 3 | ± | − | − |

children giving moderately positive reactions with the control outfit.

Outfit 3 gave a very faintly positive reaction in the child showing a strongly positive reaction with the control test, and negative reactions in the two children giving moderately positive reactions with the control test.

The directions for the tests given in the circulars of the outfits of this laboratory state that 0.1 c.c. should be injected. We injected 0.2 c.c. so as to make the area of the reaction conform to that of the control test, in which 0.2 c.c. is used. In Child E, Outfits 1 and 2 gave negative reactions when 0.1 c.c. was injected, but faintly positive reactions when 0.2 c.c. was injected.

The table shows that three of the outfits gave reactions similar to the control test in four children; the fifth child showed a faintly positive reaction with Outfits 1 and 2. Outfit 4 gave moderately positive reactions in three of the children who had strongly

TABLE 4.—RESULTS WITH OUTFITS OF COMMERCIAL LABORATORY 3

| Schick Outfits | Children Tested A | B | C | D | E |
|---|---|---|---|---|---|
| Control (Research Lab.) | + | + | + | + | ± |
| 1 | + | + | + | + | ± |
| 2 | + | + | + | + | ± |
| 3 | + | + | + | + | ± |
| 4 | ± | ± | ± | + | ± |

positive reaction with the control outfit. The capillaries containing the toxin in these outfits were of fairly thick glass, and one experienced considerable difficulty in breaking them to make the necessary dilution. The clinical results with the outfits of this laboratory corresponded quite closely to those noted with the control

outfit. It must be remembered, however, that we used twice the amount of diluted toxin directed by the circular in these outfits, and injected 0.2 c.c. instead of 0.1 c.c. in making the tests.

The contents of one capillary were also injected into a guinea-pig weighing 250 gm. Each capillary was supposed to contain one minimal lethal dose of toxin; therefore the animal should have died on the fourth day after receiving the injection. The guinea-pig showed local induration, lost in weight and became quite ill, but ultimately recovered. This result showed that the capillary contained less than one minimal lethal dose of toxin, the amount required to make the standard dilution for that outfit.

TABLE 5.—RESULTS WITH OUTFITS OF COMMERCIAL LABORATORY 4

| | Children Tested | | | |
|---|---|---|---|---|
| Schick Outfits | A | B | C | D |
| Control (Research Lab.)..... | + | ± | ± | + |
| 1..... | + | ± | + | + |
| 2..... | + | ± | ± | + |
| 3..... | + | ± | ± | + |
| 4..... | + | ± | ± | + |
| 5..... | + | ± | + | + |

Table 5 shows that the outfits of this laboratory gave results which corresponded quite closely to those noted with the control outfit. Outfit 5 was perhaps slightly stronger than the control.

## RESULTS OBTAINED WITH RESEARCH LABORATORY OUTFITS [2]

In order to determine how uniform the outfits of the Research Laboratory are, several of them were tested in the same manner as the outfits supplied by the commercial laboratories.

This outfit is prepared at the Research Laboratory with a stable ripe toxin, of which the minimal lethal dose is 1/70 c.c. The capillary tubes of the outfits are filled by means of a 0.25 c.c. original record syringe (the Kny-Scheerer Company) the barrel of which is divided into fifteen equal parts. One subdivision of the syringe corresponds to 1/60 c.c., and this is the amount of toxin filled into each capillary tube. The contents of the capillary tube represent, therefore, a little more than one minimal lethal dose of toxin, the slight excess (about 14 per cent.) allowing for some deterioration of the toxin. When the toxin is diluted with the 10 c.c. of saline contained in the outfit, the solution contains 1/50 minimal lethal dose in 0.2 c.c., the amount recommended for the test. Allowing for wastage of some of the diluted toxin, one outfit will be sufficient for at least thirty-five Schick tests.

Table 6 shows that the first four outfits gave quite uniform results. Outfit 5 gave a moderately positive reaction in Children A and C, who had shown strongly positive reactions with the other outfits. A slightly deeper injection may account for these reactions.

Three guinea-pigs, weighing 250 gm., were each injected with the contents of one of the Research Laboratory outfits. One animal died of acute diphtheria intoxication between the third and fourth day, and the other two died between the fourth and fifth day.

2. Zingher, Abraham: A Simple Outfit for the Distribution of Toxin for the Schick Test, J. A. M. A. **65**: 329 (July 24) 1915.

The results noted with these outfits show a considerable degree of uniformity in the clinical tests. The animal tests also show that each of the outfits contained one unit of toxin, the amount required for a proper standard dilution.

It is evident, therefore, that it is possible to manufacture outfits for the Schick test on a large scale without sacrificing accuracy.

## SUMMARY AND CONCLUSIONS

1. The accuracy of the Schick test depends on the strength of the toxin, the technic of the test and the interpretation of the reaction.

2. Errors in any of these may make the results of the test unreliable. It is possible to guard against a poor technic and a wrong interpretation of the reaction, but it is essential to be able to depend on the accuracy of the outfits for the Schick test obtainable on the market.

3. The outfits furnished by four commercial laboratories were tested. Of five outfits of one laboratory, two contained too small an amount of toxin to give a positive reaction in Schick-positive children. Of three outfits of the second laboratory, one was somewhat weaker and two very much weaker than the standard outfit, so that negative reactions were obtained in Schick-positive individuals. The outfits of the third laboratory compared fairly well with the control in the clinical test when twice the amount of toxin dilution prescribed in the directions on the outfits was injected. The animal test showed only about 85 or 90 per cent. of a minimal lethal dose in an outfit instead of one minimal lethal dose. The outfits of the fourth laboratory gave reactions similar to those noted with the control test.

TABLE 6.—RESULTS WITH RESEARCH LABORATORY OUTFITS

| | Children Tested | | | | |
|---|---|---|---|---|---|
| Research Lab. Schick Outfits | A | B | C | D | E |
| 1..... | + | + | + | ± | ± |
| 2..... | + | + | + | ± | ± |
| 3..... | + | + | + | ± | ± |
| 4..... | + | + | + | ± | ± |
| 5..... | ± | + | ± | ± | ± |

4. The outfits furnished by the Research Laboratory gave practically uniform results clinically, and the animal test showed full potency of the toxin.

5. It is practicable to manufacture outfits for the Schick test on a large scale, without sacrificing accuracy.

**Substitutes for Arsphenamin.**—A discussion of the use of sundry "substitutes" for arsphenamin in the treatment of syphilis will be one of the principal subjects of discussion at the All-America Conference on Venereal Diseases, held in Washington in December, under the auspices of the U. S. Public Health Service. The medical profession has been repeatedly cautioned against the use of arsenic preparations not belonging to the arsphenamin group. The Public Health Service declares that it is necessary to test these arsenic preparations carefully because of their toxic nature. If improperly prepared, they may be harmful, no matter how carefully they are used; on the other hand they may be entirely worthless. Some of the unlicensed preparations that have been foisted on the market were frauds, containing no arsenic or other curative properties.

# TRANSFUSION OF DUODENAL CONTENT

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In this article I shall describe the extraction of duodenal content from a healthy donor and its insertion into the duodenum of a patient, as a therapeutic measure; cite the clinical indications for the procedure; mention the possible utility of transfusion of duodenal content in certain diseases, and suggest the possible research value of investigation of the results of such transfusion.

Extraction of duodenal content from the duodenum of a healthy adult is a simple procedure. That such fluid, containing bile, duodenal secretion and pancreatic secretion might be of value to persons suffering from lack of digestive mixture is obvious. That, in infections of the liver and pancreas, it might furnish nutrient powers over such period as to be in some cases a life saving measure seems plausible.

## REPORT OF CASE

The case in which duodenal transfusion was made is one whose earlier clinical study was described by Stockton before the Association of Gastro-Enterologists, Atlantic City, in May, 1920.

In 1916, the patient was treated for hypochlorhydria. Following this there was a period of good health. In 1919, the patient returned for treatment and was found to have gastritis, achylia gastrica and enterocolitis. There was diarrhea. Jan 1, 1920, after an interval of improved health, the patient returned with jaundice. There was no fever at this time. A diagnosis of duodenitis was made. Later there was angiocholitis. It was believed that the gallbladder was not involved. There was irregular fever. Later there developed signs of pancreatic insufficiency. The stools were large and fatty, bowel movements were frequent, and either fasting or strict limitation of diet were necessary to control the intestinal disturbance. Jaundice was at times slight and at times intense. In May, 1920, the patient's weight was 91½ pounds. The blood showed moderate leukocytosis.

There was some evidence of improvement in that periods of fever were diminishing in length and the temperature was not so high as in the earlier weeks. Yet progress was slow, and any attempt to increase diet brought trouble. A protein diet produced putrefactive stools. Fat was not digested. Starches were incompletely taken care of, and excessive feeding of starch was contraindicated by the finding of a trace of sugar in the urine. Examination of the duodenal content disclosed very low ferment activity.

On some occasions bile of normal appearance was obtainable through the duodenal tube. Microscopically the specimens usually showed numerous pus cells, and on various occasions the microscopic field was filled with pus. Streptococci were numerous. No specimen was obtained which could be identified by dark color, as coming from the gallbladder itself. On one occasion fresh blood, possibly 1 or 2 c.c., was withdrawn through the tube.

Normally, fluid withdrawn from the duodenum contains bile, pancreatic secretion and duodenal secretion in uncertain proportions. Moreover, there is usually some emptying of gastric juice from the stomach into the duodenum. It is therefore a mistake to attempt either to make such exact determinations of ferment activity as are at times found in the literature on this subject or to attempt to locate with certainty the source of pus or blood. Whether abnormal cellular elements come from the duodenum itself, from the finer biliary ducts of the liver or the larger ducts, from the gallbladder or from the pancreas, it is not possible to determine. The pus or blood may have come through from the stomach. The identification of dark green infected bile from the gallbladder may in some cases form an exception to the statement of the uncertainty of attempts to locate definitely the site of an infection.

In the case under consideration, inefficiency of the digestive fluids as evidenced by the ferment tests (according to the method of Bondi) and the enormous undigested stools suggested that the patient needed an active digestive mixture. Such a mixture could be procured from the duodenum of a healthy individual by the use of the duodenal tube.

Transfusion of duodenal content was performed in the attempt to nourish the patient and thus to increase her resistance to infection.

It was believed that if the patient could digest even one meal a day, progress might be made. Since the action of enzymes is by catalysis, it was assumed that a little enzyme might go a long way, but there were practical difficulties in the way of supplying a large amount of human duodenal content.

## PROCEDURE

The services of a healthy donor were procured. Each evening the duodenal tube was inserted and left over night. In the morning, before breakfast, duodenal content was extracted by syringe or siphonage. From 40 to 100 c.c. were obtainable in three quarters of an hour. A few sips of water were at times necessary to start the flow. After withdrawal of the content, the tube was withdrawn and the donor was free to go about his customary work. Trial of passing the donor's tube early in the morning, allowing from one to two hours for it to enter the duodenum, proved this method to be equally satisfactory to that of leaving the tube over night.

The patient had previously had introduced a duodenal tube, and this had entered the duodenum. It was allowed to remain continuously in position. The patient was given a rather liberal breakfast of cereal with cream and sugar, bacon and egg, toast and fruit. She was able to eat with the tube in position without great difficulty, though it was necessary to make liberal time allowance for proper mastication.

The fluid extracted from the donor was withdrawn at such hour as the patient would have completed her meal, and was promptly inserted by syringe into the duodenal tube of the patient. It was put in slowly, about one-half hour being occupied in the administration of 100 c.c. At noon the patient was allowed peptonized milk, and this was given every two hours for the rest of the day.

This course of procedure was continued for two weeks. Symptomatically, the patient showed improvement. Abdominal discomfort and distention were much diminished. The stools were still fatty, but smaller. Irregular fever continued, and a gain of a pound and a half of weight was but temporary. At the end of the two weeks of duodenal transfusion, the patient's weight was the same as at the beginning.

Shortly after discontinuance of transfusion, the patient was referred for operation. Drainage of the gallbladder was performed. It is of interest to note that the gallbladder, to all appearances, was normal excepting that it was pale. The further clinical course of this case will be described by Dr. Stockton.[1]

## COMMENT

No general deductions can be made from apparent improvement through transfusion of duodenal content, in a single instance.

The possible application of the method in acute infection of the liver or pancreas is a matter for consideration. Its possible utility as one measure in preventing the acidosis of the accompanying starvation in these cases may well be kept in mind.

Transfusion of either gastric juice or duodenal content or both might be of interest in achylia gastrica and particularly in the achylia gastrica of pernicious anemia. Not only is the digestive effect of these juices to be considered, but also their value in that they contain hormones or activators of pancreatic secretion. The question arises as to whether the introduction of human digestive juices could have any effect on carbohydrate tolerance in diabetes.

1. Stockton: Ann. Med., to be published.

The administration of human digestive juices might be of value in the intractable intestinal disturbances of early childhood. Their introduction by capsule would be necessitated in the younger cases. In this connection it is to be remembered that the digestive juices of infants are of different composition than those of adults.

The therapeutic use of human digestive juices presents certain obvious difficulties, yet in suitably selected cases their value may well be sufficiently great to warrant the undertaking of transfusion of duodenal content.

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# INSOMNIA FOLLOWING ACUTE EPIDEMIC (LETHARGIC) ENCEPHALITIS IN CHILDREN *

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Persistent insomnia in children is uncommon. It follows the acute infectious diseases, such as typhoid fever and pneumonia; it is one of the symptoms of severe chorea, and it is one of the manifestations of the neuropathic child. Under other circumstances it is rarely seen unless it is due to discomfort or pain. During the last few months we have observed a number of children who were brought to the hospital because of inability to sleep at night. From our observation of these cases we are convinced that persistent insomnia is a fairly common sequel of acute epidemic (lethargic) encephalitis in children. In this communication we wish to present the histories of six patients who manifested this symptom.

## REPORT OF CASES

CASE 1.—A white boy, aged 4 years, who was referred to one of us, April 23, 1920, because of persistent insomnia, had been perfectly normal previous to the onset of his illness. On the night of January 16, he was unable to sleep, and since that time the wakefulness at night had continued. Because of his restlessness and activity he was thought to have chorea, a diagnosis that was not confirmed by the subsequent course of his illness. The mother said that the child would stay awake all night, spending the time in constant activity, talking, playing, singing, whistling, etc. Toward morning he would go to sleep and sleep a variable length of time, sometimes all day, sometimes only an hour or so during the entire twenty-four hours. The usual means to combat insomnia, such as wet and dry packs, sedatives, attempts to keep him awake and active during the day, and exercise, had no effect whatsoever. Paralyses had never been noted by the mother. The patient was under observation from April 23 to July 11. No definite abnormal findings were obtained by physical examination. The cerebrospinal fluid was normal. However, the behavior of the child was very striking. As nighttime approached he became very active, jumping up and down in bed and talking incessantly. At 10 or 11 o'clock at night he would be as wide awake as the average child in the middle of the day, and showed no inclination to sleep. He would stay awake all night, at times talking to himself, at other times whistling and singing, fretting and crying, but never still. When any one spoke to him he would enter into a lively conversation. His behavior at night differed from that during the day; for example, he would spit a good deal in the bed or on the floor. He would frequently wet and soil the bed and occasionally be found lying in feces, whereas during the day he would call the nurse. When excited, he would stammer. The greater part of the night would be spent in ceaseless activity. Toward morning he would fall asleep. As a rule he slept from three to twelve hours in the twenty-four. This always occurred between 5 a. m. and 6 p. m. The striking point about his sleep in the daytime was that it was very deep, and when awakened for meals he would fall asleep immediately, sometimes in the act of eating. It was very difficult to keep him awake during the morning. On awakening he would seem normal until evening, when the same abnormal actions would be repeated. Attempts to keep him awake and amuse him during the daytime had no effect on his nocturnal behavior. Continuous tubs and packs were unsuccessful in bringing on sleep. He was discharged, July 11, without any definite improvement in the insomnia.

At first we were puzzled as to the nature of the patient's condition. The nightly repetition of sleeplessness and excitability followed by deep sleep in the daytime suggested the possibility that it was the result of an acute (epidemic) encephalitis; but in the absence of a definite history of an acute illness with fever, ocular paralyses, lethargy, etc., we were unable to substantiate the diagnosis. Subsequently, however, we have had the opportunity to observe five children with insomnia following acute encephalitis, and the striking similarity of the latter cases to the foregoing would seem to verify the diagnosis. A brief description of these five cases is given.

CASE 2.—A boy, aged 9½ years, admitted to the Harriett Lane Home, Feb. 15, 1920, had been perfectly well until February 11. On this night he slept poorly. Two days later he complained of pain in his eyes. The following day (February 14) he had double vision, and the parents noted an internal squint of the right eye. He became very restless and delirious, and was brought to the hospital five days later. When admitted to the ward he was delirious, and so active that the frequent administration of sedatives was necessary. The temperature was 101 F. The physical examination was negative. The cerebrospinal fluid was under slightly increased pressure, contained 51 mononuclear cells per cubic millimeter, and the globulin reaction was positive. The Wassermann reaction was negative. After five days his restlessness and delirium had disappeared and the temperature was normal. He was discharged, March 5, apparently normal. The diagnosis of acute epidemic encephalitis was made on the acute onset with delirium, the ocular changes and the changes in cerebrospinal fluid. Two weeks later he was brought back because he was nervous and would not sleep at night. He would stay awake practically all night; he was very restless and tossed constantly from side to side, calling to his parents every few minutes. However, he was not delirious and there were no hallucinations. Toward morning he would become less active and go to sleep. Some days he would sleep eight or ten hours, but during the entire twenty-four hours he might sleep only an hour or two. Sometimes he would go to sleep eating a meal or standing up in bed. Attempts were made to keep him awake during the day so that he would sleep at night, but were unsuccessful. He had become very nervous and had developed various tic-like movements, such as clearing his throat continually, stretching out his arms, and putting his finger to his nose. He was readmitted, May 7, for three weeks' observation. During this period he slept practically none at night, but spent the night in constant activity, talking, clearing his throat, stretching his arms, tossing and jumping about the bed, and spitting a good deal on the floor. He slept well during the morning, and the sleep was deep and undisturbed by the noise of the ward. When seen, July 8, there was no improvement in his nocturnal behavior.

CASE 3.—A white boy, aged 7 years, was perfectly well until February 19, when in the night he became quite restless and delirious. The following day the delirium and restlessness were more marked, and muscular twitching was noted. The patient was thought to have chorea because of his excitability

* From the Harriet Lane Home, Johns Hopkins Hospital.

and constant movements. He then became stuporous and was brought to the Harriet Lane Home, February 24. On admission, the patient was dull and slept a good part of the time. The temperature was 103 F. The positive findings were drowsiness, sluggish extra-ocular movements, and exaggerated reflexes. The cerebrospinal fluid was clear, contained 36 mononuclear cells per cubic millimeter, and gave a positive globulin reaction. The patient remained in the hospital until April 5, by which time he had improved and his behavior seemed normal. He slept well at night. The diagnosis of acute epidemic encephalitis was made, based on the acute onset with fever and delirium, followed by drowsiness and the spinal fluid changes. The child did not do well after he returned home; he became very nervous and developed tic-like movements, such as wetting the forefinger and placing it in the cheek, etc. At night he was wakeful, in constant motion, jumping up and down in bed, singing, talking and sleeping very little until about 4 a. m., at which time he would sink into a deep sleep and sleep until noon. The disposition of the child had changed, and he had become untidy in his habits and would constantly spit on the floor. This condition has persisted, and when last seen (July 26) he was so active at night that one of his parents had to stay with him to prevent him from hurting himself. We allowed him to sleep when he chose during the day, for keeping him awake had no influence on his insomnia.

Case 4.—A white boy, aged 6 years, was perfectly well until Feb. 3, 1920, on which day it was noted that he was restless and delirious and threw his arms about aimlessly. This excitable state lasted for three days and nights, and he was thought to have chorea. The boy gradually improved, and on February 20 the muscular movements had practically disappeared. At this time a tremor of the hands was noted and a change in speech, so that the child talked very slowly. No paralyses were noted, but insomnia developed and was persistent. He was admitted to the Harriet Lane Home, May 3. The physical examination was negative save for slow, scanning speech and a coarse tremor of the hands. The cerebrospinal fluid showed no increase in cells, but gave a positive globulin reaction. The Wassermann reaction was negative. The patient slept fairly well at night and was discharged, May 31. The diagnosis of acute epidemic encephalitis was made on the history of acute onset with delirium, choreiform movements, tremor, scanning speech and insomnia. Following discharge the tremor gradually disappeared and the speech became normal. Six weeks later (July 15) the father reported that the child was well except that he was unable to sleep at night. He would lie awake until 2 or 3 o'clock each morning, after which time he would go to sleep and sleep until noon the following day. Keeping him awake during the day failed to make him go to sleep earlier at night. He had therefore been allowed to sleep late in the morning, and he was doing well and gaining in weight.

Case 5.—A white boy, aged 9½ years, had been perfectly well until February 27. On this day the parents noted a peculiar "staring" expression of the eyes. That night he was restless and would not go to sleep, and talked continuously. A left facial paralysis was noted by the mother four days later. Since this time he had not slept at night; he had remained awake until 5 o'clock in the morning and then slept part of the morning. Because of this persistent insomnia he was brought to the Harriet Lane Home, July 13. On examination there was a partial paralysis of the left side of the face, unequal pupils, and a bilateral internal strabismus. During the night he was restless and remained awake until midnight. He then slept brokenly for an hour, and after that stayed awake until 9 a. m., from which time he slept until he was awakened at noon. In this case the insomnia showed no sign of abating five months after the acute attack of encephalitis.

Case 6.—A white girl, aged 5½ years, was brought to the Harriet Lane Home, July 6, because of inability to sleep at night. She had been well up to February 20, on which day she became excited, talked foolishly, and developed an internal squint. This excitable state lasted for two days, after which time she became rational and the squint disappeared, but from this time she had not slept well at night. She would stay awake for several days and nights, and then sleep heavily all day. She was taken to a hospital, where she remained six weeks. Sleeplessness at night was noted there. On her return home, June 21, she would stay awake until 3 or 4 o'clock in the morning; then she would sleep the better part of the next day. At times at night she would get very excitable and spit. She was admitted to the Harriet Lane Home, July 16, 1920, in order that her nocturnal behavior might be observed. The first night she slept all night; the second she was awake until 8 a. m., talking incessantly, tossing about, and waving her arms in the air. From 8 a. m. she slept until noon. She was then quiet until evening, when she again became very restless, excited and active, and remained awake until 3 a. m. She slept until breakfast, and following this slept nearly all day. During the night she was careless in her habits, and frequently soiled herself. Since her discharge, July 11, there has been no improvement in her condition, and she is allowed to sleep when she chooses during the day.

## COMMENT

It will be observed that the duration of the insomnia in the first patient has already been more than seven months, in the second five months, in the third four months, and in the last three patients six months each. Insomnia following acute disease, such as typhoid fever, has never lasted so long as this in our experience. The sleep of the neurotic child may be broken and irregular and it is frequently disturbed by dreams and night terrors, which have not occurred in these patients. The neurotic child does not have the deep, undisturbed early morning sleep. His sleep is usually light, and the slightest noise serves to awaken him. Several of our patients early in the disease have been regarded as having chorea because of the "choreiform movements" observed in this stage. However, these movements have not persisted, and the disease, when we have observed it, has presented no close resemblance to true chorea. The movements that have sometimes appeared later have been repetitions and have been much more like those of severe tic than they have like those of Sydenham's chorea.

It is now well recognized that there are cases of epidemic (lethargic) encephalitis which do not show the symptomatology of an acute febrile onset, ocular paralyses and lethargy, and that there are well authenticated cases in which the paralyses may be entirely absent and lethargy may not appear. On the contrary, delirium, excitability and choreiform movements may be the predominant symptoms.[1] We feel that nocturnal wakefulness, excitability and restlessness, followed by deep sleep, almost stupor, during the morning, accompanied by a change of disposition and behavior during the waking period, persisting for several months, is a characteristic syndrome following acute epidemic encephalitis in childhood. We have no hesitancy in classifying the foregoing cases under the general group of encephalitis now prevalent. The term "lethargic" is unfortunate for several reasons, one of which that it tends to induce the overlooking of nonlethargic cases. It is important that this condition be recognized in order that the children may be regarded as sick children and that the parents may be assured that the insomnia and other peculiarities are not due to wilfulness and disobedience on the part of the child. The patients should be placed in a quiet environment, permitted to sleep when they choose, and not awakened in the morning for meals and bath. They should be given their noon meal and

1. Several of these cases are of the type described as "encephalitis choreiformis" by Dimitz and others. Although various writers have noted insomnia in the acute stage in these cases, insomnia persisting over several months has not been recorded.

their evening meal, and a third meal should be given at night. They require careful attention at night, and must be prevented from harming themselves. Sedatives, as a rule, are not necessary and are not satisfactory. We are unable to make a definite statement as to the prognosis, but we can only say now that there is no tendency to rapid improvement.

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## FURTHER STUDIES ON THE SPECIFICITY OF STREPTOCOCCI *

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### I. SPECIFIC PROTECTIVE ACTION OF SERUM AGAINST HEMOLYTIC STREPTOCOCCUS OF SCARLET FEVER

In a previous article I [1] reported that the serum of a sheep immunized with a hemolytic streptococcus from the throat in the acute stage of scarlet fever contained opsonins and agglutinins for the hemolytic streptococci that prevail in the throat and complicating lesions early in this disease, but not for hemolytic streptococci from other sources, such as erysipelas, mastoiditis, measles, influenza, diphtheria and the normal throat. The results of absorption tests also indicated that the hemolytic streptococcus from scarlet fever forms a distinct group, scarlatinal streptococci removing the opsonins and agglutinins for these cocci, while absorption with a hemolytic streptococcus from erysipelas has no such effect. These results suggested that the hemolytic streptococci of scarlet fever form a distinct group from the immunologic point of view. Bliss [2] reports similar results by means of agglutination tests with immune rabbit serum.

I now wish to report the results of certain experiments made to determine whether this immune sheep serum would protect mice against living hemolytic streptococci isolated from acute cases of scarlet fever and other sources. The sheep had been inoculated for six months, first with dead, then with living hemolytic streptococci from a scarlet fever throat, and the serum agglutinated the homologous streptococcus at a dilution of 1:2,000. The dilution at which opsonification ceased was 1:360. Normal sheep serum contained neither opsonin nor agglutinin for this streptococcus.

It was found difficult to raise the virulence of these cocci by animal passage, and as it was known that the intraperitoneal injection of 0.5 c.c. of a twenty-four hour old ascitic dextrose broth culture generally killed a mouse in twenty-four hours, this dose was chosen, but with full knowledge of the crudeness of the method.

The method of immunization was the same as the one used by Dr. Weaver [3] and myself in our study on antistreptococcus horse serum:

Five-tenths c.c. of serum was injected subcutaneously into mice, one half the mice receiving immune sheep serum, the other half, the controls, normal sheep serum, and twenty-four hours later the living cocci were injected intraperitoneally. While the intraperitoneal injection of immune serum has an advantage over the subcutaneous in more rapid absorption, it possesses the disadvantage of causing a migration of leukocytes into the cavity and so raising the resistance of the animal in a nonspecific manner to the subsequently injected cocci. For this reason the serum was introduced subcutaneously, allowing the cocci to be injected later into a normal peritoneal cavity. When the test is made in this manner, it would seem to afford a more delicate index to the specific protective power of the serum.

Fourteen control mice injected with normal sheep serum and later inoculated with living streptococci died in from twenty to twenty-four hours. Three lived forty-eight hours. Six of the nine mice injected with immune sheep serum and inoculated with streptococci from scarlet fever throats were only slightly sick and were alive at the end of three weeks; three lived two days, the controls dying within twenty-four hours. The eight mice injected with immune serum and inoculated with hemolytic streptococci from sources other than scarlet fever—erysipelas seven, mastoiditis one—all died in from twenty to twenty-six hours.

The immune serum, after having been kept in the icebox forty-three days, ceased to protect against the streptococci from scarlet fever, and it was found to contain neither opsonins nor agglutinins for the homologous coccus. This result was in accord with the previous observations by Dr. Weaver and myself that antistreptococcus horse serums rapidly lose their opsonic power. We observed also that the opsonic power could be largely restored by the addition of fresh human or guinea-pig serum, and that the protective power of the immune serums continued so long as they could be reactivated by fresh serum. I therefore attempted reactivating the old immune sheep serum with fresh normal sheep serum, and found that it could be restored in this way to its former power. I immunized mice with 0.5 c.c. of immune and normal sheep serum, equal parts, and found they were protected against the living homologous streptococcus as well as a heterologous scarlet fever throat streptococcus, but not against two strains of hemolytic streptococci from influenza. One protected mouse lived four days, the other two weeks; the four controls died within twenty-four hours. The mice injected with immune serum and inoculated with influenza cocci died the same day as their controls, twenty-four and forty-eight hours, respectively.

The experiment emphasizes the necessity of a guarantee of the activity of antistreptococcus serum, which may rapidly lose a large part of its protective power.

#### CONCLUSIONS

The serum of a sheep immunized with hemolytic streptococci from the throat in the acute stage of scarlet fever protected mice against cultures of hemolytic streptococci isolated from scarlet fever patients, but not against hemolytic streptococci from other sources, such as erysipelas, mastoiditis and influenza.

This antistreptococcus sheep serum rapidly lost its opsonic and protective power, which was restored by the addition of fresh normal sheep serum.

These experiments, together with the opsonin and agglutinin reactions, give additional weight to the conclusion that the hemolytic streptococci from the acute stage of scarlet fever form a distinct biologic group, apparently peculiar to scarlet fever.

### II. IMMUNOLOGIC STUDY OF HEMOLYTIC STREPTOCOCCI OF ERYSIPELAS

Little study has been made of the immunologic relations of the streptococci of erysipelas since Fehleisen [4] isolated and demonstrated streptococci in the skin lesions of this disease. A change in hemolytic streptococcal opsonin during the course of erysipelas has been demonstrated by Ruediger,[5] Schorer,[6] Tunnicliff [7] and Boughton.[8] Schorer used only erysipelas streptococci

* From the John McCormick Institute for Infectious Diseases.

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2. Bliss, W. P.: Bull. Johns Hopkins Hosp. **31**: 173 (May) 1920.
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5. Ruediger, G. F.: Further Studies on Streptococcus Infections, J. A. M. A. **46**: 108 (Jan. 13) 1906.
6. Schorer: Am. J. M. Sc. **134**: 728, 1907.
7. Tunnicliff, Ruth: J. Infect. Dis. **4**: 304, 1907; ibid. **5**: 268, 1908.
8. Boughton: Tr. Chicago Path. Soc. **8**: 24, 1909; J. Infect. Dis. **7**: 111, 1910.

in his experiments. I estimated opsonins with strains of hemolytic streptococci from erysipelas, but in two cases used hemolytic streptococci from scarlet fever and in another case tested also a strain from acute articular rheumatism and a *Streptococcus mucosus*, and found changes in opsonin for these cocci also. Boughton found the changes more marked for streptococci from erysipelas than for other streptococci.

The experiments reported below were made with the hemolytic streptococcus from erysipelas, as the question of its specific nature remained undetermined by the earlier work. This question seemed particularly interesting at this time on account of the recent observations on the specific nature of the hemolytic streptococcus of scarlet fever, in which I [1] demonstrated that the serum of a sheep immunized with such a streptococcus, isolated from the throat in the acute stage, contains opsonins and agglutinins for the hemolytic streptococci that prevail in the throat and complicating lesions early in the disease, but not for hemolytic streptococci from sources such as erysipelas, mastoiditis, measles, influenza, diphtheria and the normal throat. Similar results appear to have been obtained by Bliss,[2] by means of agglutination tests with immune rabbit serum.

In these experiments both opsonins and agglutinins were studied.

A sheep was immunized with a hemolytic streptococcus isolated from a blister on the face of a patient with a typical acute case of erysipelas. The sheep was inoculated intravenously with killed cultures, daily for four days, then at four day intervals for one month, and finally with small numbers of living cocci for one month more. This sheep gained in weight steadily during immunization, but produced antibodies irregularly, while a sheep immunized with hemolytic streptococci from scarlet fever lost weight rapidly, but produced antibodies fairly constantly.

For the opsonic experiments, the cocci were grown on goat blood agar twenty-four hours and suspended in physiologic sodium chlorid solution. Normal sheep leukocytes, collected in 0.2 per cent. sodium citrate solution and washed once in physiologic sodium chlorid solution, were used in the experiments. The serum, normal and immune, was heated for one-half hour at 56 C. to remove the thermolabile element, and then diluted to determine the point of opsonic extinction. The mixtures of serum, leukocytes and coccal suspension, equal parts, were incubated twenty-five minutes, smears stained with carbolthionin, fifty polymorphonuclear leukocytes counted, and the number of cells taking part in phagocytosis noted. Spontaneous agglutination of streptococci did not interfere with the opsonic determinations.

The agglutination experiments proved more difficult on account of spontaneous clumping of the organisms. The cocci were first grown for twenty-four hours in ascitic dextrose broth, one part of ascitic fluid to four parts of 1.0 per cent. dextrose broth, $p_H$ 7.8. The cultures were centrifuged, the supernatant fluid removed, and the cocci washed once or twice in plain meat extract broth, $p_H$ 7.8, and finally suspended in this medium. In the tests the serum dilutions were made with plain broth, the dilutions running from 1:25 to 1:5,000, an equal part of bacterial suspension was added to each tube of diluted serum, and the mixtures incubated for one hour at 55 C. Tubes containing suspended cocci in broth but without serum and with cocci in normal sheep serum diluted from 1:25 to 1:500 or higher were included in each test. The immunizing streptococcus was tested in each experiment to serve as a standard.

The following hemolytic streptococci were used: thirteen strains isolated from acute, typical cases of erysipelas (face, four; eye, five; nose, three; leg, one); twenty-four strains from cases other than erysipelas (scarlet fever, eleven; influenza, six; acute tonsillitis, two; wounds, two; blood lethargic encephalitis, one; pericardium puerperal sepsis, one; normal throat, one).

All of these strains were gram-positive streptococci, insoluble in bile and producing a wide zone of hemolysis (from 2 to 4 mm.) on goat blood agar plates, after twenty-four hours' incubation. The size of the colonies varied somewhat, but those from erysipelas, influenza and lethargic encephalitis were generally larger and flatter than the others.

All of the streptococci fermented lactose and salicin, but not mannite or inulin, and hence would be classed as *Streptococcus pyogenes*.[9]

Of the hemolytic streptococci isolated from erysipelas, all showed marked phagocytosis with the immune sheep serum, the point of opsonic extinction being from 1:150 to 1:3,000, 1:150 being the point at which phagocytosis ceased for the majority of the strains with immune serum; with normal sheep serum the point of extinction was 1 to 3.

Three erysipelas streptococcus strains agglutinated spontaneously and could not be tested. The other ten erysipelas strains were all agglutinated by the immune serum at a dilution from 1:100 to 1:2,000, 1:1,000 being the dilution at which the majority of the cocci ceased to agglutinate. Only one strain agglutinated with normal sheep serum, and it agglutinated at 1:50.

None of the hemolytic streptococci isolated from sources other than erysipelas were opsonified or agglutinated by the immune sheep serum in dilutions higher than by normal sheep serum.

Only one strain of hemolytic streptococcus from puerperal sepsis was studied. It would be interesting to test more strains on account of the epidemiologic relation of puerperal fever and erysipelas.

One reason why the results of these experiments indicate a greater specificity than my previous results with opsonins and the serum from cases of human erysipelas is probably the heating of the serum, which destroys the thermolabile element and so removes the general opsonic action.

Absorption experiments were made to determine whether the opsonins could be absorbed by the heterologous streptococci as thoroughly as by the immunizing coccus. In this case, agglutination tests were not made because the sheep was not producing agglutinins at this time.

Immune serum was treated with the homologous streptococcus and with two other hemolytic streptococci, one from the eye of an erysipelas patient, the other from a scarlet fever throat. Killed centrifuged organisms were suspended in the immune serum, which was incubated two hours and refrigerated for twenty-four hours; finally, the serum was removed by centrifugation. This process was repeated three times, and now the serum was found not to opsonify the immunizing coccus. Absorption with the two erysipelas streptococcus strains removed the opsonins for the thirteen erysipelas strains, but the scarlet fever streptococcus failed wholly to remove the opsonins for the erysipelas streptococci.

## CONCLUSIONS

The serum of a sheep immunized with a hemolytic streptococcus from an acute case of erysipelas was found to contain opsonins and agglutinins for the hemolytic streptococcus of this disease, but not for hemolytic streptococci from other sources, such as scarlet fever, wounds, otitis media, influenza and puerperal sepsis. The results of absorption tests also suggest that the hemolytic streptococci from erysipelas form a distinct group, erysipelas streptococci removing the opsonins for these cocci, while absorption with a scarlatinal hemolytic streptococcus had no such effect.

It would appear from these experiments that the hemolytic streptococci in erysipelas belong to a distinct immunologic group, as determined by opsonification and agglutination.

9. Holman, W. L.: J. M. Res. 34: 377 (July) 1916.

# Clinical Notes, Suggestions, and New Instruments

## TOWEL FOR UROLOGIC WORK*

CHARLES S. LEVY, M.D., BALTIMORE

A need for improvement in the technic of draping the penis for urologic work has long been felt. The towel employed after the penis has been cleaned is usually one with a hole in the center. Often the hole is either too small, leading to constriction of the penis, or too large, resulting in the carrying of pubic hairs into the operative field. The use of several towels round the base of the penis is just as unsatisfactory. The towel presented herewith for routine use in instrumentation and cystoscopy is recomended for better and cleaner technic.

The towel (Fig. 1) is so designed that it has a hole, to the edges of which is attached a conical pocket with a draw

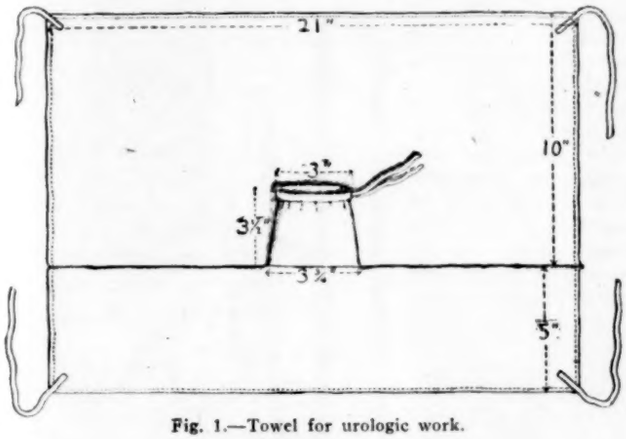


Fig. 1.—Towel for urologic work.

string at the apex. The measurements of the towel as found convenient at the Hebrew Hospital are given in the illustration. It is easily made by sewing together two corresponding pieces of material, and then making a band for the draw-string.

The penis is cleansed, and a sterile towel then placed over it. The first three fingers of one hand are introduced into the pocket; the glans penis is grasped and brought out. The

Fig. 2.—Towel in use; nothing but glans penis exposed.

draw-string is then tightened behind the glans in the coronary sulcus (Fig. 2). By this method nothing but the glans penis is exposed. The strings at the corners of the towel may be tied on each side beneath the thighs.

The towel has been employed successfully for circumcisions and for plastic work on the penis, as well as for instrumentation.

*From the Hebrew Hospital, Urologic Clinic.

## A NEW TENACULUM

L. H. ZEUCH, M.D., CHICAGO

For those who are still using the snare for the removal of tonsils, I offer a tenaculum which gives the operator a firmer hold, so that he can more easily dissect the adherent gland from the pillars. The snare can be more easily slipped over this instrument than other forceps used for this purpose, and when traction is made, less likelihood of its tearing out

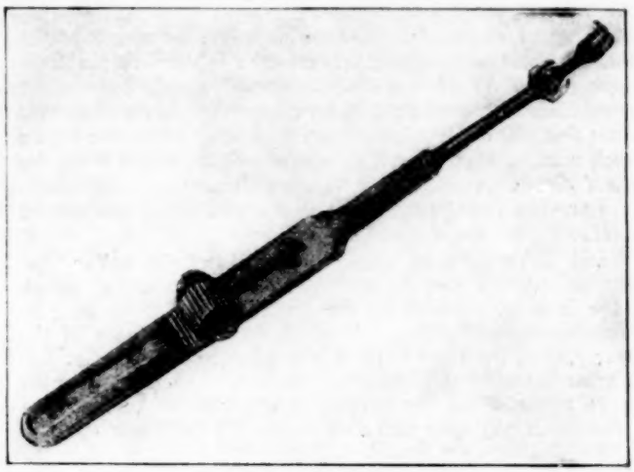

Fig. 1.—Tenaculum open, ready to lock.

occurs. This firm hold enables the surgeon to reach the base with his snare with greater facility. This instrument can also be used wherever volsella are indicated, i. e., for work around the uterus. It takes up less room and holds the uterus with a firm grip. It will be found useful also for the removal of neoplasms with a firm consistency, which require considerable dissection from the substructures, such as fibromas, sarcomas and sebaceous cyst capsules—in fact, any tumor or

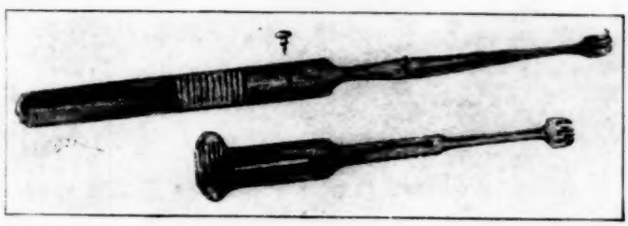

Fig. 2.—Segments, with set screw.

structure requiring removal in which a firm hold of the tissue to be extirpated is desired by the surgeon.

In removal of the tonsils the distal prongs are embedded in the gland just anterior to the posterior pillar. The gland is now pulled outward and the instrument deflected to the opposite side of the mouth and the proximal prongs are then locked into the gland. Care must be exercised before locking that the anterior pillar is not included in the bite. After removal the tissue is released by lifting the proximal prong by means of two alae on the lateral aspect of the elevation (which is used to facilitate the locking of the instrument), lifting it from the serrations on the inferior surface of the prong. A little experience enables the operator to release it within a few seconds. The accompanying illustrations of the segments will clear up the principle on which it was devised.

I am indebted to V. Mueller, instrument maker of Chicago, for valuable suggestions concerning the mechanics of the instrument. My colleagues at the hospitals have suggested changes which I hope to incorporate in subsequent modifications should I deem them expedient.

3014 Fullerton Avenue.

## A CONTAINER FOR THE ADMINISTRATION OF FLUIDS *

JACOB BUCKSTEIN, B.S., M.D., NEW YORK

This container consists of (Fig. 1):

1. A nonbreakable vacuum bottle.

2. A rubber stopper with three openings for: (*a*) an air inlet tube; (*b*) a fluid outlet tube, and (*c*) a tube for connection with the graduate gage. This tubing is made of German silver. To tubes *b* and *c* are attached pieces of rubber tubing fitted with clamps.

3. A metal cover. This screws on over the mouth of the container, and in so doing prevents the rubber stopper from slipping out. As the container is turned upside down when the administration of fluid is to begin, this is an important precaution. The cover is supplied with a spring on the inside which accommodates itself to stoppers that project from the mouth of the container for varying distances. Externally, there are two metal projections which give the thumb a hold in screwing on the cover.

4 and 5. Two brackets that project from the collar that hugs the upper part of the container (the lower part as shown in the inverted position of the container). The opening at the extremity of bracket 4 is made for the insertion of the lower part of the gage (9). At the extremity of bracket 5 is an arrangement that has three openings. The topmost opening is threaded on the inside. This is made so that the thermometer (8) may be screwed in. To the lower opening

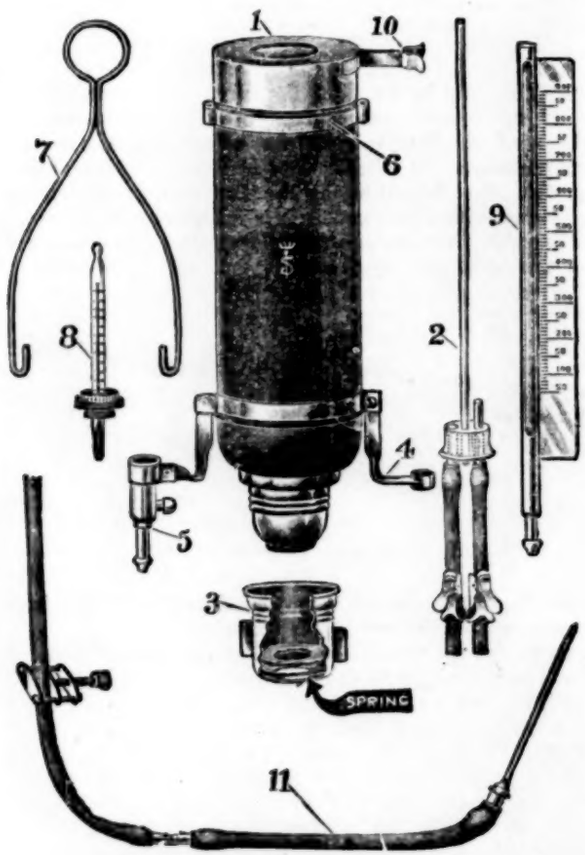


Fig. 1.—Separate parts of apparatus.

is attached the rubber tubing through which the fluid is to flow on its way out. To the opening on the side is attached the piece of rubber tubing leading from the fluid outlet tube inserted into the rubber stopper. Thus, the fluid on its way out from the container passes through the tube leading from it to the lateral opening of 5. It makes its exit by way of the lower opening and thus out through 11, which is attached to it. The fluid therefore in its escape from the container bathes the bulb of the thermometer (8). In this way the temperature of the fluid is registered.

6. A metal collar that hugs the base of the container. This is supplied with two lateral openings.

7. The hanger for suspending the container, hooked at each extremity. These hooks fit into these lateral openings of the collar. The upper rounded portion fits over a hook.

8. A thermometer, registering Fahrenheit. Near the bulb end, this is supplied with a washer firmly placed between two circular pieces of metal. The lower metal piece is threaded and screws into the larger, upper opening in 5. The bulb comes in contact with the escaping fluid.

9. A gage, graduated so that each division represents 10 c.c. The gage consists of metal, with the exception of a piece of inexpensive glass tubing inserted on the inside and cemented at its lower part. This glass is protected by a metal back which encases it about two thirds of the way. This minimizes the chances of breakage. Even if the piece of glass tubing should be broken, it can be replaced at very little cost, as the graduations are on the rectangular piece, which is made of metal. The lower end of the gage fits into the opening of bracket 4.

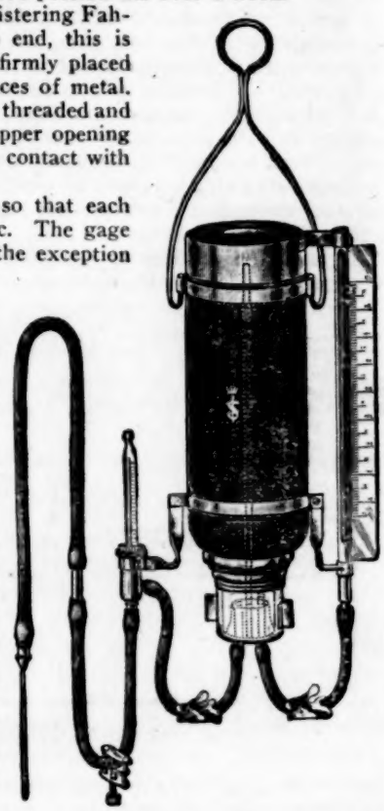

Fig. 2.—Apparatus with parts assembled, with needle for intravenous or hypodermic administration of fluids.

10. A projection from the base of the container. The outer extremity receives the upper end of the gage. The lower end of the gage is connected with one of the outlet tubes in the rubber stopper by means of a small piece of rubber tubing. It is thus possible to know the level of the fluid within the container, the quantity of fluid present, and the rate of flow.

11. Two pieces of tubing held together by a small piece of glass tubing. One end of the rubber is connected to the lower opening of 5. At the other end is attached a needle. The flow through the needle is controlled by means of a screw clamp.

Figure 2 shows the apparatus put together and ready for use.

Figure 3 shows the container used in conjunction with the apparatus for intestinal feeding and therapy, described elsewhere:[1]

1. Soft rubber tubing of 7 mm. outside diameter. One end is connected with fluid outlet tube. It is supplied with:

2. Hoffman's screw cut-off, for regulating the number of drops per minute through:

3. Glass drip bulb, small size.

4. Metal connection piece, slip joint, which connects the remainder of the apparatus with the intestinal tube when feeding is begun.

5. Metal end-piece at the proximal end of the intestinal tube.

The following parts of the outfit fit snugly into the end piece:

6. A solid metal plug. After a feeding has been completed and the intestinal tube cleaned, this solid plug is inserted. The proximal portion of this is ring shaped. Attached to this is an elastic band which fits around the ear.

* From the Medical Service, Hoff General Hospital, Fox Hills, Staten Island, N. Y.

1. Buckstein, Jacob: An Apparatus for Duodenal and Intestinal Feeding and Therapy, Mil. Surgeon **47**: 118 (July) 1920.

In addition, the slip joint (4) fits snugly into its lumen and also the tip of a Luer syringe.

The syringe is used for cleaning the tube before and after each feeding and for the removal of gastric and intestinal secretions.

7. A soft rubber intestinal tube (40 inches in length). This is perforated at the distal end for a distance of 1½ inches from the end for the purpose of minimizing occlusion. Longer pieces of tubing may be used when indicated.

8. A metal bucket. This is a gold-plated capsule-shaped bucket (size 23 French). It has two lateral openings about the size of the lumen of the intestinal tube, and above this two small holes on either side for sutures.

9. Suture. This is supplied in the form of one tube of catgut and one card of silk. When it is desired to permit the rubber tube to remain in the stomach or within the lumen of the intestine for a very short period, as in the removal of gastric or intestinal material or when it is to be removed after a sojourn of only a few days, the suture to be preferred is silk. When, however, the tube is to remain in the intestinal lumen over a prolonged period of time, catgut should be used as a suture. With the absorption of the catgut the bucket is detached and leaves the intestinal tract.

In addition, the outfit is supplied with one straight needle for suture and a wire stylet, 45 inches long, to aid in the introduction of the tube.

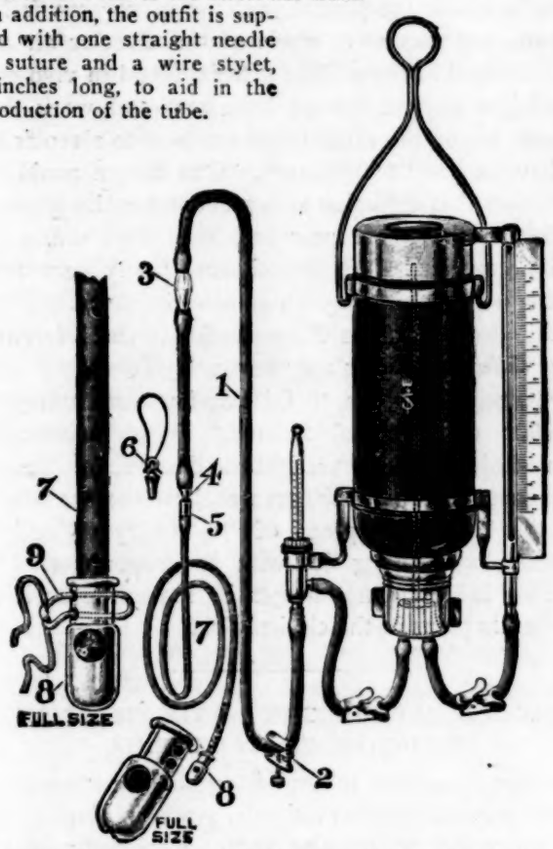


Fig. 3.—Apparatus used in conjunction with outfit for intestinal feeding and therapy.

ADVANTAGES

1. The container is readily sterilizable.

2. It is practically indestructible, with the exception of the thermometer and the inexpensive piece of plain glass tubing protected by metal on the inside of the gage.

3. It conserves the temperature of the contained fluid.

4. The temperature of the escaping fluid can be accurately registered.

5. By means of the gage, the exact amount of fluid and the exact rate of flow can be determined.

Such a container may be used for: (*a*) the intravenous administration of fluids; (*b*) hypodermoclysis; (*c*) proctoclysis; (*d*) duodenal and intestinal feeding and therapy; (*e*) transduodenal lavage, and (*f*) the administration of irrigating fluids, surgical solution of chlorinated soda (Dakin's solution), etc.

## RAT-BITE OF THE FACE AND EYE

WALTER BAER WEIDLER, M.D., NEW YORK

A. E. T., a girl, aged 7 months, was sleeping in a baby carriage, when the mother awakened, turned on the gas-light and found a large rat on the baby's face. The lighting of the gas did not disturb the rat, and she grabbed it and threw it across the room, and saw blood streaming down the face of her child. The mother brought the baby to the Manhattan Eye and Ear Hospital the next day. I found about ten bites on the forehead, nose and left eyelid. These bites were not very deep, and this portion of the face was partly covered with dried blood. There was an abrasion about 2 by 4 mm. long on the inner portion of the cornea. The corneal epithelium and perhaps Bowman's membrane were stripped down and lay in a curled-up mass at the lower part of the abraded area. There was a slight pallor of the denuded tissue and the edges of the ulcer. There was also some injection of the bulbar conjunctiva, with photophobia and lacrimation. It was, of course, impossible to say that this condition of the cornea was a rat bite or whether it was the result of a scratch from the rat's foot. The child was immediately admitted to the hospital, and treatment was begun.

The eye was washed with warm boric acid solution every two hours. Atropin, 1 drop three times a day, was used. The rat-bites of the face were treated with zinc oxid ointment, and they all cleared up, as none showed any infection. The corneal abrasion smoothed out, and the opaqueness of the corneal epithelial layer disappeared after six days. There was no rise of temperature, and the child made a good recovery. The cornea was entirely clear and showed no diminution of vision. The visiting nurse, who has kept in touch with the child, reports that there has not been any fever since her return home.

137 East Sixtieth Street.

## FOREIGN BODY IN NASOPHARYNX

OTIS ORENDORFF, M.D., CANON CITY, COLO.

Foreign bodies of various kinds are common in noses and throats but not so, perhaps, in the cavity between.

Last fall, Dr. F. R. Moore of Florence, Colo., brought a boy, aged 13 years, to the office who for some time had been complaining of the typical symptoms of adenoid obstruction, mouth breathing, snoring, nasal discharge and bad breath. The lad was well nourished and physically normal except for difficulty in breathing through the nose. In view of his age and healthy appearance, a malignant tumor hardly seemed probable nor an exhaustive examination necessary, although inspection of the throat revealed the soft palate to be slightly convex instead of concave, having the appearance of pressure from behind. This was supposed to be a case of large adenoids, for which an operation was at once performed. Much to our surprise, however, the curet brought away great masses of wax of the ordinary kind used in chewing gum, and only a small amount of adenoid tissue.

The patient was relieved at once and had no further trouble. Inquiry revealed the fact that he was an inveterate addict to chewing gum and would use an entire 5 cent package at a time, frequently going to bed with it all in his mouth. Sometimes it would be gone on awaking, but this did not cause any complaint, as he was supposed to have swallowed it during the night. Evidently, during sleep, he had somehow forced the masses behind the uvula and into the nasopharynx, where it remained until removed by the operation.

**Diagnosis of Tuberculosis.**—The tubercle bacillus is far from being always in evidence. For the diagnosis of tuberculosis, we cannot therefore insist on the production of tubercle bacilli as some would demand. Before the days of *Spirochaeta pallida* we diagnosed syphilis on clinical evidence with remarkable exactitude. Such evidence is abundantly available in tuberculosis.—Robert Philip, *Edinburgh M. J.*, July, 1920.

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SATURDAY, NOVEMBER 13, 1920

## THE THEORY OF OXYGEN SECRETION BY THE LUNGS

The physiology of altitude and its medical aspects have acquired greatly enlarged importance through the growing prominence of aviation. High altitude or low barometric pressures, particularly when first encountered, may interfere with the well-being of man. There is no longer any doubt that the essential factor in the production of distress is the diminished supply of oxygen; it is also known that adjustments take place in the persons affected so that they suffer less. Residence or sojourn at high altitudes may bring about acclimatization. Among the known explanations of the latter result are the increased breathing, the increased blood flow due to circulatory changes, the increment in the number of red blood cells, and a higher percentage of hemoglobin in the blood. All of these changes tend to improve its oxygen-carrying capacity.

A further much debated factor in the favorable adjustment to lowered oxygen tension concerns the mode in which the blood is supplied with its indispensable oxygen under conditions that may tend to occasion imperfect aeration of the arterial blood. It has long been taught by most physiologists that the passing of oxygen from the alveolar air into the blood of the pulmonary capillaries is the result of a simple physical process of diffusion. The gas passes from a region of higher tension to a place of lower partial pressure until an equilibrium is attained. If oxygen passes from the alveoli only in this way, the pressure of the gas in the blood can never exceed that in the alveolar air. Studies made during the Anglo-American Expedition to Pike's Peak in 1911 seemed to show that often, and particularly after a sojourn at that altitude, the oxygen tension in the blood might be considerably higher than the alveolar oxygen pressure. The results thus pointed consistently to the conclusion that in acclimatization to high altitudes the lungs acquire the power of raising arterial oxygen pressure by actively secreting oxygen into the blood. Haldane of Oxford, who has been the leading champion of this view,[1] believed also that at sea level muscular work may furnish a powerful stimulus to secretory absorption of oxygen by the lung epithelium. Advocates of physical training have accordingly concluded that one advantage of indulging in vigorous exercise would be to "train the lungs in oxygen secretion."

Whether the pulmonary epithelium takes an "active" or physiologic part in contrast with a purely passive or physical one in the process of blood aeration has been debated for three decades. Where physical conceptions fail to explain observed facts there is always a temptation to assume some biologic or physiologic force or factor to account for the discrepancies. Barcroft[2] and his co-workers at the University of Cambridge have made a careful reexamination of the theory of oxygen secretion. Under a condition of anoxemia caused by living for six days in an atmosphere in which the partial pressure of oxygen fell to 84 mm., analyses were made of the alveolar air and arterial blood in man. The arterial blood in vivo contained less oxygen during both rest and work than did samples of the same blood exposed to alveolar air in vitro, at body temperature. One cannot avoid the conclusion that diffusion will account for the quantity of oxygen that must pass into the blood under the crucial conditions of the experiment. The observations of Krogh[3] of Copenhagen had already paved the way for this decision. The discrepancies in the inferences of the different schools are presumably due here, as not infrequently elsewhere, to false assumptions and inappropriate experimental technic. It is unfortunate when distinguished investigators disagree on fundamental problems. For the present, however, we believe that the burden of proof of the theory of oxygen secretion by the lung lies with its propounders. At any rate it should not longer be made the basis of therapeutic plans in the clinical field.

1. Excellent accounts will be found in: Manual of Medical Research Laboratory, War Dept., Air Service, Washington, Government Printing Office, 1918. Bohr: Nagel's Handbuch d. Physiol.: Art. Respiration. Barcroft, J.: Respiratory Functions of the Blood, Cambridge, 1914.

2. Barcroft, J.; Cooke, A.; Hartridge, H.; Parsons, T. R., and Parsons, W.: The Flow of Oxygen Through the Pulmonary Epithelium. J. Physiol. **53**: 450 (May) 1920.

3. Krogh, A.: Skandin. Arch. f. Physiol. **23**: 179, ff., 1910.

## THE DEFEAT OF THE ANTIVIVISECTION INITIATIVE IN CALIFORNIA

For the first time in the history of the struggle to prohibit experiments on animals, a prohibition bill has been submitted to popular vote. Repeatedly in the past, efforts have been made to secure abolition of animal experimentation, or large restriction of it, before state legislatures. For more than a score of years such attempts have been made in the national Congress, Massachusetts, New York, Pennsylvania and elsewhere. In no instance has a law been enacted limiting the use of the experimental method in solving medical problems—a method which in physics and chemistry has transformed our knowledge of natural processes and placed their control in our hands. There has been universally a recognition that this method is

as applicable to problems of disease as it is to problems of electricity and chemical structure. Further, there has been universal appreciation of the great medical advances already secured, and of the certainty that more are to be secured, by the use of this method.

The submission to popular decision of a question so complicated and so closely bound with emotional elements as the use of animals for medical research offered possibilities of a serious check to medical progress. In the minds of those who have defended animal experimentation, there has never been doubt that with clear understanding of the ideals, the methods and the achievements of those engaged in medical research, the great majority of our population would stand firmly against restrictive measures. The only question was whether the misinterpretations and falsehoods commonly circulated by outsiders regarding the laboratory proceedings would be believed rather than the testimony of the laboratory workers themselves. The antivivisectionists in California followed their usual routine, so roundly denounced by the English Royal Commission, of widely circulating grave misstatements of fact and reckless charges of wanton cruelty. In the October number of the *Ladies' Home Journal* and in the *Country Gentleman* for October 16, there appeared articles making most atrocious statements regarding the treatment of animals in medical laboratories. These articles seemed to be nicely timed to affect popular opinion before the vote on November 2, and to preclude the possibility of reply. In one of the articles, the charge was made that "more than 800 stray dogs in St. Louis alone last year were garnered into the various medical establishments at low prices, there to be strapped to tables and carved or torn to shreds in the so-called 'holy name of science.' It was —and is—so, in nearly every city. The captured tramp dogs are hung up with spikes in them; their lips are sewed together to muffle their screams; and they are otherwise tortured; while grave-eyed scientists take copious notes on the effect of various forms of agony upon the victims' hearts and nerve centers." It is hardly necessary to answer a declaration of such abominable practices as these. An inquiry was made, however, in every medical laboratory in St. Louis, and it brought forth only indignant denial of the charges. The humane rules drawn up by the Bureau for the Protection of Medical Research of the American Medical Association are posted and carefully adhered to. What is true of St. Louis is true of establishments throughout the country.

It is well to remember that the propaganda of the antivivisectionists rests on two assumptions—wanton *cruelty* in the treatment of laboratory animals, and utter *uselessness* of the results of animal experimentation. Both lines of attack were worked elaborately by the antivivisectionists in California. Large amounts of money were contributed by eastern adherents to promote their cause, and newspaper space, posters and leaflets were used to the utmost. With limited means, the medical men and the university authorities put forth their opposing claims. It is greatly to the credit of the intelligence of the California voters that they saw through the falsehoods and misrepresentations of the antivivisectionists and registered their disapproval of the measure to abolish animal experimentation.

## TWO NEW AMERICAN JOURNALS

With the advance of American medical science to an equality with European science in most fields and to a leading position in others, there has come a simultaneous development of the periodical publications which chronicle the researches, observations and achievements of American workers. During the last few years, special publications in the fields of neurology and psychiatry, surgery, cutaneous diseases and syphilis have been issued by the American Medical Association. Other scientific organizations have inaugurated new periodicals on psychobiology, on parasitology, on general physiology, on medical history, on immunology, on urology and on cancer research. Now come the announcements of two new publications, to be issued under excellent auspices, which should be of great service to American medicine.

THE JOURNAL has long conducted a department of Current Medical Literature which aims to present a survey of the best contributions in the medical literature of the world. Furthermore, most of our special periodicals have departments devoted to the literature of their fields. However, any one who wishes to ascertain the progress made in any special subject must gather his material from many sources unless he is fortunate to chance on a collective review prepared by an authority in whom he may have confidence. For example, the eminently successful lectures of the Harvey Society, founded in New York City for the diffusion of knowledge of the medical sciences, and more recently similar undertakings in Philadelphia and Chicago, provide résumés of this character with the added relish of competent criticism. These considerations have prompted the newest project of the American Physiological Society: *Physiological Reviews*.[1] The *Reviews* are intended to provide critical articles in which the more recent literature of biochemistry, biophysics, experimental pharmacology and experimental pathology will be compared and summarized in a brief but comprehensive manner. An editorial board consisting of W. H. Howell, Reid Hunt, F. S. Lee, J. J. R. Macleod, L. B. Mendel, H. G. Wells and D. R. Hooker will select subjects and assign them to authors for competent and balanced treatment. Such a publication should appeal not only to teachers and research workers but also and particularly to busy clinicians who

1. One volume will be published a year and will appear quarterly in four parts. Subscription, $6 per volume of 500 pages, net, postpaid to the managing editor, D. R. Hooker, Johns Hopkins Medical School, Baltimore, Md.

find it well-nigh impossible to consult original sources and who need critical surveys of experimental research as a guide for practical work and teaching.

A journal of a different type is the *American Journal of Hygiene*,[2] which will be devoted "solely to the publication of papers representing the results of original investigations in the domain of hygiene, using the term in the broadest sense, to cover all applications of the mathematical, physical, chemical, medical and biological sciences to the problems of personal and public hygiene." It will also arrange for the publication of monographs, which because of their length or costliness could not be published in any of the periodicals already devoted to fields closely related to public health and hygiene. The new periodical is closely affiliated to the new School of Hygiene and Public Health of the Johns Hopkins University. It is to be edited by William H. Welch, and will be managed by Charles E. Simon. Its support is derived from the De Lamar Fund bequeathed to Johns Hopkins University in part specifically for the publication and dissemination of the results of medical study and research. The editors have also selected an assisting editorial board bearing the names of many distinguished workers in this special subject. The publication proposes to cover a progressive and interesting field in an up-to-date and progressive manner. Sanitarians and wide awake physicians who wish to keep informed of advances in the solving of hygienic problems will find it especially useful.

## THE EXPERIMENTAL PRODUCTION OF CONGENITAL DEFECTS

A remarkable advance in the study and understanding of congenital abnormalities has been opened up in recent years by the methods of the experimental zoologists. We may recall, among others, the experiments of Stockard showing the influence of parental alcoholism on the physical development of animals, and the demonstration by Arlitt [3] of an equivalent psychologic deficiency in the offspring of alcoholized animals. By taking advantage of immunologic methods, Guyer and Smith [4] of the University of Wisconsin have recently demonstrated in a most striking way the possibility of producing selected intra-uterine lesions, which not only result in congenital defects but which so modify the offspring that the defect may then be transmitted for successive generations.

The procedure adopted was to immunize fowls by repeated injections of pulped lenses from rabbits' eyes, and then to inject the immune serum from the fowls, with its specific antibodies for lens proteins, into female rabbits about ten days after impregnation. At this time the optic vesicles of the fetus are well developed, and the development of the ectodermal elements into the lens is about to begin, the lens being relatively large and surrounded by a rich vascular supply by the thirteenth day. As a result of the injection of the specific antibodies, the formation of the lens is in many instances interfered with, so that in a considerable proportion of the new-born rabbits marked eye defects are found. These consist of opacity of the lens, which may also be much reduced in size, and often accompanied by abnormalities in the iris, decreased size of the entire eye to as little as one-fourth the normal dimensions, and even complete collapse of the eyeball, leaving no trace of pupil or iris. Other defects are coloboma and persistence of the hyaloid artery. In some cases the eye defect that was present at birth becomes even more marked as the other tissues of the animals develop. That these changes in the eye were produced by the lens antibodies seems to be established by their absence in rabbits born of mothers treated with the serum of fowls immunized with other tissues. Presumably the fact that only a small proportion (nine of sixty-one) of the young of rabbits injected with lens antiserum exhibited the eye lesions depends on the well known fact that immune bodies do not pass readily from the mother to the fetus, and so only a few of the fetuses received an effective dose. The mothers themselves showed no injuries in their own eyes, probably because in the adult animals the lens is avascular and would not come in contact with the injected antibodies. Furthermore, if the treated mothers were bred again, the later litters did not show offspring with defective eyes.

Perhaps the most interesting and important result of these experiments is the establishment of the fact that the eye defects, once secured, may be transmitted to subsequent generations through breeding. This has been done for six generations, with the imperfection tending to become worse and in a larger proportion of the offspring with each succeeding generation. Also, offspring which themselves do not show eye lesions may produce young with eye defects. The abnormal condition has in general the characteristics of a mendelian recessive. When defective eyed males or females are bred to normal eyed individuals from other stock, only normal eyed progeny result in the ensuing generation; but the defect may be made to reappear in subsequent generations if appropriate matings of this progeny are made. It is of particular significance that the defects may be transmitted through the male line, since this eliminates the possibility that it depends on the presence of the specific antibodies in the blood of the mothers of the later generations, and establishes the occurrence as a clear-cut case of inheritance of a specific modification produced by extrinsic factors. As yet it is not clear how the transmission of the defect through successive generations is to be explained; but the fact that two

2. At least six numbers, corresponding to a volume of 600 pages, will be issued annually. Subscription: $6 a volume; Johns Hopkins Press, Homewood, Baltimore, Md.

3. Arlitt, Ada Hart: The Effect of Alcohol on the Intelligent Behavior of the White Rat and Its Progeny, Psychological Monographs **26**, No. 4, 1919.

4. Guyer, M. F., and Smith, E. A.: J. Exper. Zool. **31**: 171, 1920.

normal eyed animals from the defective line may produce offspring with defective eyes indicates that, whatever its origin, the abnormality becomes a germinal constituent which no longer requires expression in the immediate parental body to call it forth. For the physician, the explanation of the phenomenon is probably of less immediate significance than the phenomenon itself. The fact that immune bodies in the blood of a pregnant female may produce congenital defects in the offspring is of immense practical importance, and that such defects may pass to subsequent generations when the proper mating occurs is indeed startling. It seems highly probable that these experiments will lead to a much greater knowledge of the pathogenesis of developmental defects than we have previously possessed.

## *Current Comment*

### MORE TRUTH ABOUT SACCHARIN

The proponents of the use of saccharin as a substitute for sugar have doubtless detected in a recent publication [1] an unusual opportunity to promote their efforts in the defense of the chemical. The assertion was there made that the ingestion of saccharin, as shown by animal experiments, produces a large increase in the content of catalase in the blood. Since the function of facilitating oxidations in the body has repeatedly been attributed by the same investigator to this enzyme, it is a ready inference that saccharin has a beneficial action on the body. This has been particularly emphasized for the diabetic. It has been pointed out repeatedly, however, that the alleged function of catalase in the body remains both improbable and unproved. Despite the enormous doses of saccharin used, Stehle [2] of the University of Pennsylvania was unable to duplicate the effects claimed; and now Becht [3] of the Northwestern University Medical School has likewise contributed the results of elaborate series of investigations which serve to remove the illusion about saccharin that may have crept abroad. Saccharin is neither a food nor a potent drug. Its usefulness in dietotherapy is limited to the function of taste; to increase its use aside from this restricted scope would be a misfortunte as, indeed, it often is a fraud.

### ADDED DANGERS FROM ANTHRAX

The recognition of the association of human anthrax with the industries dates back to the latter half of the eighteenth century. In 1769, Fournier of Dijon drew attention to the occurrence of the disease in men who were handling raw hair and wool. The seriousness of the dangers attending the manipulation of infectious hides and fleeces has become increasingly apparent of late, particularly since some of the customary precautions against the menace have been relaxed because of the laxity prevailing during the period of the war. In the United States the disease has not been reportable in all of the states, so that dependable statistics of its comparative incidence and continuance are lacking. Nevertheless, in the years 1910-1914, seventy-nine fatal cases were reported, most of them among persons whose occupation evidently brought them into possibility of contact with infected materials. Latterly, unusual prominence has been given to human anthrax because of its demonstrated derivation from infected shaving brushes in well authenticated cases. A significant feature fraught with dangerous possibilities has recently been indicated by Gegenbauer [1] of the hygienic institute in Vienna, who points out that animals may harbor micro-organisms of anthrax on their hair without themselves becoming infected. This means that, in the industries, skins from demonstrably healthy animals may nevertheless carry the danger of infection, which may have been transmitted to them by contact with the secretions or excretions of sick animals. Furthermore, the same observer has noted that the anthrax bacilli can multiply readily on the hair, thereby increasing the chances of transmitting harm. These facts impose a new burden of watchfulness in the public defense against an insidious foe.

### CATS AS DIPHTHERIA CARRIERS

The day has passed when the diphtheria patient was looked on as the only source of contagion of diphtheria. The menace of the human "carrier" of the infective micro-organism is becoming so well understood that provision against it is taken in the procedures of preventive medicine and in measures to maintain public health. Furthermore, there are many instances in which domestic animals, especially cats and dogs, have been considered to have spread diphtheria. It is obviously important to know whether or not we are continually surrounded with these unsuspected sources of danger, for our animal enemies must not be treated in the same category with man's animal friends. The difficulty in the way of accepting the charge against the dog and the cat, or even the horse, which has also been incriminated, lies in the lack of dependable information. Most of the instances of natural diphtheria in animals have lacked demonstration of the presence of the true etiologic agent of the human disease. Recently, however, Major Simmons [2] has isolated diphtheria bacilli virulent for guinea-pigs from two cats which were pets of a person who contracted a fatal diphtheritic pharyngitis. Stray animals of the same species caught in the environment gave negative cultures. These bacteriologically controlled observations, including the suspected human victim, lend a greater probability to the long heralded impression that cats may contract diphtheria from human subjects and that, in turn, these animals may communicate the disease to man.

1. Burge, W. E.: Science **47**: 549, 1918.
2. Stehle, R. L.: Some Data Concerning the Alleged Relation of Catalase to Animal Oxidations, J. Biol. Chem. **39**: 403 (Sept.) 1919.
3. Becht, F. C.: The Influence of Saccharin on the Catalases of the Blood, J. Pharmacol. & Exper. Therap. **16**: 155 (Oct.) 1920.

1. Gegenbauer, V.: Das saprophytische Wachstum von Milzbrandkeimen auf tierischen Haaren, Arch. f. Hyg. **89**: 202, 1920.
2. Simmons, J. S.: Virulent Diphtheria Bacilli Carried by Cats, Am. J. M. Sc. **160**: 589 (Oct.) 1920.

### FLESH-FLY LARVAE AS HUMAN PARASITES

Human myiasis, a term used to denote infestation with the larvae or "grub" stage of dipterous insects, is scarcely familiar to American physicians. Several species of flies are known to deposit their eggs in wounds or mucous membranes. The larva known as the "screw-worm" issues in a few days and may burrow into the tissues. Analogous to the screw-worm fly, *Campsomyia macellaria* of the warmer parts of America, are the so-called flesh-flies, the larvae of which may appear as parasites of man. They have long been known, particularly in Russia. Recently Walker [1] has identified the presence of the larvae of the sarcophagid fly, *Wohlfahrtia vigil,* under the skin of young patients suffering from "sores" representing inflamed areas 1 or 2 cm. in diameter on the neck, chest, arms and palms. The mother of one of the children involved had described seeing "worms come from the pimples." The swellings usually contained from one to three larvae of the flesh-fly. These instances are unusual in that the penetration of the healthy skin by the young larvae has rarely been reported. Hence we may repeat the prosaic slogan: "Swat the fly!"

### MEDICINE AND THE STATE

Our next President will not lack for intimate counsel on medical topics in his administration of the country. His father, Dr. George T. Harding, has been for many years a physician in Marion, Ohio, and a brother, Dr. George T. Harding, Jr., is a practicing physician of Columbus. Perhaps we may hope for a scientific administration—if there is anything in heredity, we may reasonably expect one.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Typhoid Fever a Quarantinable Disease.**—Typhoid fever has been added to the list of communicable diseases for which quarantine will be imposed in the state hereafter. While the quarantine will not be as rigid as in the case of some other communicable diseases, the patient and family will be kept under strict surveillance and a bacteriologic test will be required before the patient is released. A modified quarantine is provided for persons known to be typhoid carriers.

**License Revocations Affirmed.**—The superior court of San Francisco is reported to have affirmed the action of the California State Board of Medical Examiners in revoking the licenses of Drs. R. May Minaker and James E. Thompson, San Francisco, on the charge of procuring abortion. Dr. Minaker's license was revoked in October, 1919; that of Dr. Thompson in February, 1920. It is also reported that Dr. Thompson was sentenced to the Fort Leavenworth, Kan., prison on the charge of circulating literature regarding abortion through the United States mails.

### COLORADO

**Personal.**—Dr. David A. Strickler, Denver, secretary of the State Board of Medical Examiners, was recently operated on for cholecystitis.

**School of Tuberculosis.**—To enable physicians who are not otherwise able to attend the Colorado Springs School of Tuberculosis, members of the last class collected $100 to be used for that purpose.

**Sanatorium Association Will Hold Meeting.**—The Denver Sanatorium Association will hold its first monthly meeting, November 23, at the National Jewish Hospital for Consumptives under the presidency of Dr. George W. Holman. Members of the research department will present special papers on the treatment of tuberculosis.

### GEORGIA

**Personal.**—Dr. John H. Steed, Dalton, has been appointed pension examining surgeon to succeed Dr. John F. Harris, deceased.

**Mental Hygiene Clinic to Be Continued.**—A year of activity of the mental hygiene clinic operated by the Atlanta Anti-Tuberculosis Association at its headquarters, 23 E. Cain Street, Atlanta, having demonstrated the value of the experiment, it has been decided to continue the work indefinitely following a request of the Mental Hygiene Association of Georgia. The clinic will be open Tuesday and Thursday, from 3 to 4 p. m.

### ILLINOIS

**Fined for Violation of Practice Act.**—It is reported that Willie Greer, East St. Louis, was arrested by representatives of the Department of Registration and Education for violation of the medical practice act. The case was heard before Judge E. E. Clark. Greer pleaded guilty and was fined $100 and costs.

**License Revoked.**—At a meeting of the Department of Registration and Education of Illinois, October 25, the license of Earl C. Rice, Peoria, was revoked for unprofessional conduct in regard to advertising. Rice was not a regular physician but had been licensed in Illinois among "other practitioners."

#### Chicago

**State Starts Building of Hospital.**—Construction work has been begun on the University of Illinois Medical School and Hospital, which is to occupy a site of 10 acres which has been the National League Baseball Park, and is in the vicinity of Cook County Hospital.

**Society of Industrial Medicine.**—At a meeting held recently in Hotel Sherman for the purpose of standardizing the practice of medicine and surgery, the Chicago Society of Industrial Medicine and Surgery was organized. Dr. Clarence W. Hopkins, Evanston, was elected president.

### INDIANA

**New Special Society Organized.**—At a meeting, held October 29, the Indianapolis Ophthalmological and Oto-Laryngological Society was organized and the following officers were elected: president, Dr. Jacob E. Wright; vice president, Dr. Thomas C. Hood, and secretary-treasurer, Dr. Frederick V. Overman.

**Tuberculosis Association Holds Meeting.**—At the annual meeting of the Marion County Tuberculosis Association, held at Sunnyside Sanatorium, Indianapolis, October 27, Dr. Alfred Henry was reelected president; Mr. Sol Schloss was elected vice president; Mrs. M. R. Ault, secretary, and Mrs. A. S. Rasmussen, treasurer.

**Revocation of Licenses.**—It is reported that the State Board of Medical Registration and Examination has revoked the license of Mrs. Antonia Lenz, Whiting, a midwife charged with performing an illegal operation.——Conrad Lunde, Gary, is not properly licensed to practice medicine in Indiana, according to a decision of the board, as he obtained a license by manipulation, and the license was therefore revoked.

### IOWA

**Personal.**—Dr. Edwin E. Hobby of the Iowa State University has been named director of physiotherapy at St. Francis' Hospital, San Francisco.——Dr. Wilton McCarthy, Des Moines, was recently beaten into unconsciousness by burglars who ransacked his home and later set fire to it. Dr. McCarthy regained consciousness barely in time to reach safety by jumping from an upper story window.

### KENTUCKY

**Physician's License Revoked.**—A report from the State Board of Health of Kentucky states that the license of Dr. Thomas S. Green, Irvington, was revoked, June 5, for fraud in his application.

1. Walker, E. M.: Wohlfahrtia Vigil (Walker) as a Human Parasite (Diptera—Sarcophagidae), J. Parasitol. 7: 1 (Sept.) 1920.

**Hazelwood Sanatorium Made State Institution.**— In accordance with an act of the last legislature it is announced that Hazelwood Sanatorium in Louisville has been taken over by the state. Dr. Samuel W. Bates, Louisville, has been appointed superintendent, succeeding Dr. Arthur M. Barnett, who has been in charge under the Louisville Anti-Tuberculosis Association.

## LOUISIANA

**Hotel Dieu Appoints Staff.**—By the appointment of a staff of thirty-five visiting physicians and surgeons, Hotel Dieu, the oldest private hospital in New Orleans, has made an important change in policy. Dr. Marion Souchon was elected president of the staff, and Dr. Henry W. E. Walthers, secretary.

**State Tuberculosis Sanatorium to Be Organized.**—According to plans formulated at a conference of the parish chairmen of the state antituberculosis league, held in New Orleans, October 27, a state tuberculosis hospital will be erected near Alexandria, on a site already owned by the tuberculosis commission. A percentage of the proceeds of the Christmas seal sale will be devoted to the erection of a suitable building.

## MARYLAND

**Physician Sentenced for Violating Prohibition Law.**—Dr. Samuel Alexander Rosse, Crisfield, according to reports, was sentenced to jail for four months when he pleaded guilty in the United States district court at Baltimore to five charges of illegally prescribing whisky.

**Medical Society Holds Smoker.**—The Baltimore City Medical Society held a smoker at the Medical and Chirurgical Faculty Building, November 5. Addresses were made by Drs. John T. King, Jr., Eveleth W. Bridgman and Henry Lee Smith. Dr. Harvey B. Stone is president and Dr. Frank S. Lynn, secretary of the society.

## MASSACHUSETTS

**John White Browne Scholarship Award.**—The John White Browne scholarship for advanced research of Harvard Medical School has been awarded to Dr. Alfred C. Redfield, Concord. Dr. Redfield will devote the winter months to physiologic research under Prof. R. E. Hill, Manchester, England.

**Plague Prevention Measures Planned.**—Dr. Eugene R. Kelley, commissioner of public health, has requested an appropriation of $25,000 for plague prevention measures in the seaport cities and towns of Massachusetts. As a result of a request made at a recent conference of the commissioners of health of Connecticut, Rhode Island, New Hampshire, Maine and Massachusetts that an officer of the U. S. Public Health Service be detailed as an adviser, P. A. Surg. L. L. Williams has been assigned to this work. Dr. Milton J. Rosenau, professor of preventive medicine at Harvard Medical School, has offered space for the necessary laboratory examinations.

## MICHIGAN

**Hospital Transferred to Public Health Service.**—The base hospital at Camp Custer has been transferred by the War Department to the U. S. Public Health Service for the accommodation of sick and disabled soldiers, especially those suffering with tuberculosis, who are beneficiaries under the War Risk Insurance Act.

**New Health Ordinances Passed.**—The city council of Detroit recently passed important ordinances relating to communicable disease control on recommendation of the board of health. Hereafter all persons dying within the city limits from diphtheria, smallpox, scarlatina or poliomyelitis, must be buried privately. Physicians and relatives of persons suffering from communicable diseases are compelled to report the cases to the department of health. Persons desiring to practice midwifery must first pass an examination and obtain a certificate of qualification.

## MISSOURI

**Postgraduate Clinics.**—The St. Louis postgraduate clinics will be held under the auspices of the St. Louis Medical Society, November 22-24.

**Social Service School Opened.**—Under the auspices of the University of Missouri, the Missouri School of Social Economy, designed to fill the need of trained social workers, opened for the fall term at St. Louis, September 20. Dr. George B. Mangold has been appointed director of the school.

**Reserve Medical Corps Unit.**—Formal application for the installation of a unit of the R. O. T. C., in line with the proposal of the War Department, has been made by Dr. Nathaniel Allison, dean of Washington University Medical School. Sixty students have already been enrolled in the Medical Corps Unit.

**Robert Koch Club Planned.**—At the meeting of the advisory medical staff of the Tuberculosis Society of St. Louis, held, October 23, it was decided to organize a Robert Koch Club as an auxiliary to the tuberculosis society. Monthly meetings will be held for the discussion of subjects pertaining to the control of tuberculosis.

## MONTANA

**State Health Week Announced.**—By official proclamation, dated October 27, Governor S. V. Stewart has designated the week beginning December 5 as health week throughout the state. All industrial, social welfare, church and school organizations are urged to cooperate in the observance of the health program "to the end that a more intimate knowledge of the rules of health and hygiene may be generally disseminated and that a high standard of physique of our people may be maintained and perpetuated."

## NEW JERSEY

**New Board of Health at Montclair.**—The Montclair Board of Health has been completely reorganized following the appointment of a new board consisting of Dr. James Spencer Brown, president, and Herbert B. Larner, S.B., health officer. The laboratory will be in charge of Miss Helen G. J. Jacobs, B.S., formerly with the New Hampshire State Board of Health.

**Personal.**—Dr. Edwin Field, chief of the staff of the Monmouth Memorial Hospital was presented with a pearl stickpin by members of the board of governors in recognition of his long faithful service to the hospital.——Dr. B. B. Ranson, Jr., Maplewood, has been appointed to the senior surgical staff of the Orange Memorial Hospital, succeeding Dr. John H. Bradshaw, resigned.

## NEW YORK

**Site Acquired for Police Hospital.**—In furtherance of a plan to erect and equip a $3,000,000 hospital for the benefit of the police department of New York, a site has been secured on Eastern Parkway, Brooklyn, opposite the Brooklyn Museum of Arts and Sciences.

**University Buildings Under Construction.**—The hope for an adequate endowment fund for the University of Buffalo has been realized in the successful conclusion, October 17, of a campaign for an endowment fund, which resulted in a subscription of about $5,100,000. A scheme for a new campus has been chosen from competitive plans submitted by landscape architects, the style of architecture to be Georgian Colonial. The first building now in process of construction at an estimated cost of $400,000 will be occupied by the department of chemistry. The Liberal Arts, Library and Administration buildings will be erected next. The income from the remaining fund will be available for the use of the several departments.

### New York City

**Estate of Dr. Thomas Addis Emmet.**—The estate of Dr. Thomas Addis Emmet, who died, Dec. 1, 1919, has been appraised at $299,754. A collection of Irish books valued at $2,695 was bequeathed to the American-Irish Historical Society.

**Bronx Hospital Dedicated.**—The Bronx Maternity Hospital, erected at the northeast corner of One Hundred and Sixty-Sixth Street and the Grand Concourse at a cost of $100,000, was formally dedicated, October 31. The institution provides forty beds.

**Hospital Transferred to Public Health Service.**—The Debarkation Hospital at Fox Hills, Staten Island, has been transferred to the U. S. Public Health Service and will be continued as a general hospital. The hospital has a capacity of about 500 beds. Dr. Julius O. Cobb will be in charge.

## NORTH DAKOTA

**Health Department Reorganized.**—Dr. Edward C. Haagenson has been appointed city health officer of Grand Forks, following the reorganization of the city health department. Under the new plan all work relating to water analysis and milk inspection will hereafter be done under the supervision of the public health laboratory at the State University for which a special appropriation has been allotted.

## OHIO

**Professor Bordet Delivers Hanna Lecture.**—Prof. Jules Bordet, director of the Pasteur Institute of Brussels, delivered a lecture on anaphylaxis in the Cleveland Medical Library, November 8, under the auspices of the H. M. Hanna lecture fund.

**Personal.**—Dr. Robert Lockhart, formerly with the state department of health, has been appointed district health commissioner for Cuyahoga County.——Dr. Henry L. Hall, formerly a member of the faculty of the Medical Department of the University of Southern California, has been appointed instructor in physiology in Western Reserve Medical School. ——Dr. Kenneth P. Blackfan has been appointed to the chair of the B. K. Rachford Department of Pediatrics in the University of Cincinnati, recently endowed by Mrs. Mary H. Emery.——Dr. Martin H. Fischer of the Medical College of the University of Cincinnati will deliver a series of lectures on chemical subjects in Europe in February, 1921. Dr. Edmund Baehr will temporarily fill Dr. Fischer's place at the college.——Dr. Irwin H. LeBarre has been appointed coroner of Richland County to succeed Dr. William S. Bushnell, resigned.

**Illegal Practitioners Convicted.**—The Ohio State Medical Board reports that the following individuals have been convicted of violations of the medical practice act: B. Jackson (colored), Cleveland, was fined $50 and costs, October 1; Mrs. Anna Schumm, Youngstown, registered midwife, was fined $50 and costs and given sixty days in jail for violation of the medical practice act, October 6; S. M. Van Orsdell, Youngstown, after being fined $50 and costs, October 3, promised to discontinue the sale of radio articles; Valka M. Toscek, Youngstown, licensed midwife, was fined $200 for selling remedies, half of the fine being later remitted; Tony Carr (colored), Dayton, unlicensed chiropodist, was fined $100 and costs and given 30 days in jail, October 12; Harry W. McFarren, Tiffin, manufacturer of patent medicines, has been arrested for illegal practice of medicine, three complaints being filed against him.

## OKLAHOMA

**Medical Examiners Pass on Licenses.**—It is reported that the license of Dr. C. O. Hood, Tulsa, was revoked by the state board of medical examiners because of the alleged illegal dispensing of narcotics.——The license of Dr. John M. Leed, Tulsa, which was revoked at the last meeting of the board, has been restored, subject to probation for one year.

## OREGON

**Oregon Defeats Antivaccination Bill.**—The referendum abolishing compulsory vaccination which was voted on in Oregon at the recent election was defeated two to one, the vote for the abolition of compulsory vaccination being approximately 50,000 and the vote against it over 100,000. The campaign against the measure was carried on by a joint committee of physicians and laymen.

## PENNSYLVANIA

**Physican Fined.**—It is reported that Dr. Robert E. Redmond, recently convicted of violating the state law regarding the advertisement of cures for certain diseases, has been fined $100 and costs.

**Held for Federal Court Trial.**—"Dr." Leonard L. Parry, president of the Parry Medicine Co. of Pittsburgh, is reported to have been held for trial in the United States District Court on a charge of using the mails with intent to defraud.

**Faith Healer Arrested.**—J. W. Dedrick of Pittsburgh is reported to have been arrested recently charged with practicing medicine without a license. It is alleged that Dedrick is the head of an organization of faith curists who employ laying on of hands and prayer, and that he treats patients for $35 each per month.

### Philadelphia

**Illegal Practitioner Sentenced.**—A report from the Bureau of Medical Education and Licensure states that Edward Parker Read was convicted of the illegal practice of medicine and was sentenced to six months in the county jail, October 29. The case has been appealed to the superior court.

**School Hygiene and Health Course.**—A new course in school hygiene and public health, to be open to the public, has been announced by the University of Pennsylvania. The first lecture will be given November 6, by Dr. Walter S. Cornell, director of medical inspection in the public schools on "The Objects, Aims and Results of School Medical Inspection."

**Ward Health Councils.**—A health council for every ward in Philadelphia is recommended by the Philadelphia Health Council and Tuberculosis Society following a survey of sanitary and health conditions in the city. It has been arranged to establish such councils in eight wards before the close of the year. The Bureau of Health, the Board of Education, Women's Medical College and National Congress of Mothers will cooperate. It is planned to conduct a clinic in each ward once or twice a month. The public education committee of the Civic Club will assist in organizing the ward health councils.

**Personal.**—Dr. Charles P. Noble, after a long illness, has resumed the practice of medicine.——Dr. William C. Ely has been elected to the obstetric staff of the Maternity Hospital.——Dr. Florence C. Child, superintendent of school medical inspectors of Philadelphia, has been appointed chief of the Division of School Medical Inspectors and Welfare Nursing at Trenton, N. J.——Dr. James P. Sands, provisional senior assistant medical officer of the Bureau of Hospitals has been appointed Director of Public Health and Charities.——Dr. William H. Imhoff has been appointed a resident physician in the Bureau of Charities and Correction to have medical charge of the children at Brown's Farm, the inmates of the Home for Indigent and the prisoners at the House of Correction.

## RHODE ISLAND

**Ophthalmologic and Otologic Society Elections.**—At the annual meeting of the Rhode Island Ophthalmological and Otological Society, held in the University Club, Providence, October 13, the following officers were elected for the ensuing year: president, Dr. Alvah A. Fisher; vice president, Dr. Christopher J. Astle, and secretary-treasurer, Dr. Joseph L. Dowling, all of Providence.

## SOUTH CAROLINA

**Tuberculosis Clinic at Anderson.**—A free tuberculosis clinic has been opened at the city hall, Anderson, under the charge of Dr. Clinkscales. The clinic was established through cooperation of the Chamber of Commerce, Rotary Club and Civic Association.

**Personal.**—Dr. John Mercier Green, health officer of Charleston, who recently underwent an operation for appendicitis at Baker Sanatorium, has resumed his duties.——Dr. Miles J. Walker, York, has been elected a member of the executive committee of the state board of health to succeed Dr. William J. Birdell, Lugoft, resigned.

## SOUTH DAKOTA

**Aberdeen Health Department Merged.**—The Brown County Health Department, which was recently merged with the city health department of Aberdeen, has established offices in the Municipal building, Aberdeen. Dr. Bates, county physician, is in charge.

## TENNESSEE

**Social Council Elects Officers.**—At the meeting of the Memphis Council of Social Agencies, held October 12, Dr. Marcus Haase was reelected president, and Dr. E. E. George, treasurer.

**County Health Association Organized.**—The Dyer County Public Health Association was organized at Dyersburg, October 15. Every civic organization in Dyer County is represented on the executive committee.

**Personal.**—Dr. William L. Vickers has been named superintendent of the National City Hospital to succeed Dr. William F. Fessey, resigned.——Dr. Thomas F. Staley, Bristol, has enlarged his private eye, ear, nose and throat infirmary to fourteen rooms.

## TEXAS

**Personal.**—Dr. Ezra E. Dickason, Brownsville, has been elected post commander of John Hanson Post, American Legion.

**Arraigned for Sixth Time.**—At El Paso, Byron L. Black, chiropractor, was recently arraigned for trial on a charge of practicing medicine without a license. It is said that this is the sixth time within two years that Black has stood trial on similar charges.

## WEST VIRGINIA

**Convictions for Narcotic Act Violations.**—It is reported that Dr. Stockley B. Hayes, Flemington, was fined $250 for issuing prescriptions for morphin indiscriminately, and that Dr. Bernard H. Kyle, Franklin, was fined $25 for failing to keep a proper record of orders for narcotics, at the Wheeling term of the United States Court for the northern district of West Virginia. W. O. Davis, a druggist of Grafton, was fined $500 and costs after entering a plea of guilty to a charge of violating the narcotic act.

**State Tuberculosis Association Elects Officers.**—At the annual meeting of the West Virginia Tuberculosis Association, held in the Waldo Hotel, Clarksburg, October 25, under the presidency of Dr. William W. Golden, Elkins, the following officers were elected: president, Dr. George H. Barksdale, Charleston; vice presidents, Mrs. C. O. Henry, Fairmont, Mrs. J. M. N. Downs, Buckhannon, Mrs. William Wilson, Weston, Mr. N. T. Frame, Morgantown, and Drs. Jones Ross Hunter and William W. Golden, Elkins, and treasurer, Mr. Ben Baer, Morgantown.

## WISCONSIN

**Personal.**—Dr. John B. MacClaren, Appleton, sustained painful injuries to his back when his car overturned, October 10, near Plymouth.

**Health Center Merged.**—The health center of the American Red Cross at Appleton has been merged with the home service office and headquarters have been opened at 627 Appleton Street.

**Tuberculosis Sanatoriums to Be Consolidated.**—Consolidation of Milwaukee's Blue Mound Tuberculosis Sanatorium with Muirdale Sanatorium, hitherto maintained by the county, was recommended by the Milwaukee council public welfare committee, October 13. The merger was proposed by Health Commissioner Ruhland as a means of avoiding duplication and expense. The tentative plans suggest utilization of Blue Mound for incipient and convalescent cases while the Muirdale Sanatorium will be devoted to sufferers in advanced stages.

## CANADA

**Hospital News.**—At the annual meeting of the corporation of the Women's College Hospital and Dispensary, Toronto, it was disclosed that patients are being constantly turned away for lack of accommodations. Accommodation is also needed for the nursing and domestic staff, and an obstetric wing is urgently necessary.

**Smallpox in Ottawa.**—Among the 111 cases of smallpox reported to the department of health, Ottawa, Canada, there was not a single patient who had been vaccinated during the last seven years. The board of health has empowered Dr. Lomer to appoint six or eight physicians in different districts of the city to afford every facility for vaccination.

**University News.**—Part of $5,000,000 expected to be realized from a campaign for McGill University, Montreal, will be devoted to a building to house the departments of pathology, medical jurisprudence, hygiene and psychiatry. It is estimated that such a building would cost at least $460,000, and its maintenance would require an endowment of $150,000.——The medical faculty of the University of Toronto has decided to hold regular monthly meetings of all engaged in the teaching of medicine and allied sciences and of members on the staff of the medical department.

**Personal.**—Dr. Alexander L. McKay, Toronto, has accepted an appointment with the Rockefeller Foundation Medical Research Committee.——Dr. Bryce McMurrich, Toronto, has been appointed superintendent of Ste Anne's Hospital, Ste Anne de Bellevue, Quebec, succeeding Dr. Kenneth Cameron, who is resuming private practice in Montreal.——The king of Belgium has conferred on Dr. Henri S. Beland, the title of Knight of the Most Distinguished Order of the Crown of Belgium for "generous, brave and devoted services given as physician at the hospitals of St. Elizabeth in Antwerp from the beginning of the great war until the day of his departure for long captivity in Berlin, Germany.

## GENERAL

**Appointment of Sanitary Engineer to Haiti.**—Commander James M. Minter, M. C., U. S. Navy, at the Naval Hospital, Great Lakes, Ill., has been appointed sanitary engineer to Haiti, for the purpose of introducing an improved system of sanitation.

**Science Association Meeting.**—The annual meeting of the American Association for the Advancement of Science and Affiliated Scientific Societies will be held in Chicago, Dec. 27, 1920, to Jan. 1, 1921. Headquarters will be at the Congress Hotel.

**War Risk Bureau Appoints Medical Director.**—In conformity with a plan to organize an independent headquarters' medical staff for the War Risk Bureau, Director R. G. Cholmeley-Jones has appointed Dr. Lester B. Rogers, New York, as director of the medical division of the War Risk Bureau, and Dr. James L. Busby, Columbus, Ohio, as assistant director.

**Tuberculosis Conference Elects.**—At the Southern Tuberculosis Conference held in Jacksonville, Fla., October 13, the following officers were elected: president, Dr. James S. Lock, vice presidents, Mrs. R. S. Phifer, Mississippi, and Mrs. W. W. Scantin, South Carolina, and secretary, R. H. Hixon, Jacksonville. Arkansas was selected for the next annual meeting.

**Medical Fraternity Holds Meeting.**—The seventeenth national convention of the Phi Beta Pi Medical Fraternity was held at Boston, October 15, under the presidency of Dr. David S. Long, Harrisonville, Mo. The following officers were elected: supreme archon, Dr. Dale E. Turnacliffe, St. Paul; vice supreme archon, Dr. Henry W. E. Walther, New Orleans, and secretary-treasurer, Dr. Lawson G. Lowery, Iowa City.

**Morton in the Hall of Fame.**—The list of names of persons elected to the Hall of Fame in the quinquennial elections by the senate of the University of the State of New York, just announced, includes that of William Thomas Green Morton for the accredited successful demonstration of ether anesthesia. Dr. Morton is thus the first physician who has been elected to the Hall of Fame in recognition of a medical achievement.

**Medical Veterans Form Organization.**—At the annual reunion of the medical officers of the eighty-ninth division, recently held at Kansas City, Mo., a permanent organization was formed and the following officers were elected: president, Dr. Reginald H. Meade, Kansas City; and vice presidents, Drs. Czar C. Johnson, Lincoln, Neb., Harvey McCarthy, Kansas City, Claredon J. Combs, Oshkosh, Wis., and Monte L. Beloit, Clyde, Kan.

**International Tuberculosis Society Formed.**—A permanent international society for the prevention of tuberculosis, composed of representatives of all nations signatory to the League of Nations covenant and of the United States, was formed, October 19, at an international antituberculosis conference in Paris. Sir Robert William Philip, Edinburgh, was elected president of the International Society. The first meeting will be held in the fall of 1921 at London.

**Venereal Disease Survey by Public Health Service.**—A second survey is shortly to be made by the Public Health Service of work done in 444 large cities toward the extermination and prevention of venereal diseases. In the survey made last February the cities were graded according to the vigor of their campaigns, and were divided into four classes, according to population. The state boards of health will cooperate with the Public Health Service in making the survey.

**Alvarenga Prize of College of Physicians of Philadelphia.**—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about $250, will be made, July 14, 1921, provided that an essay deemed worthy of the prize shall have been offered. Essays submitted for competition may be on any subject in medicine, but must not have been previously published, and if written in a language other than English should be accompanied by a translation. They must be in the hands of the secretary of the college, Dr. John H. Girvin, 19 South Twenty-Second Street, Philadelphia, before May 1, 1921. No prize was awarded in 1920.

**California Endorses Scientific Medicine.**—The four so-called "medical measures" voted on in California at the recent election were all defeated, the people of the state strongly indorsing the position taken by the Medical Society of the State of California and the League for the Conservation of Public Health on these questions. The proposed antivivisection bill was overwhelmingly defeated. The antivaccination measure and the bill for the creation of a separate chiropractic board were voted down, and the efforts of the osteopaths to secure the right to prescribe drugs were also defeated. This is one of the first instances in which medical questions have been submitted to popular decision.

## LATIN AMERICA

**New Schools of Pharmacy.**—Courses in pharmacy have recently been established in Panamá and Guatemala.

**Antimosquito Campaign in Colombia.**—The president of Colombia has ordered that rigid measures be taken for the extermination of mosquitoes with a view to the prevention of yellow fever and malaria.

**Annex to School of Medicine of Chile.**—The department of education of Chile has ordered the construction of an anatomic pavilion for the School of Medicine, which will cost 100,000 pesos (about $40,000).

**Tuberculosis Campaign in Brazil.**—The Brazilian Red Cross has initiated an intensive antituberculosis campaign throughout Brazil. Mrs. Pessoa, the president's wife, is taking an active part in this work.

**Yellow Fever Disappears from Mexico.**—Advices from the cities of Sonora reported to have been infected with yellow fever indicate that the disease is now well under control. The abatement of the epidemic is attributed to a marked drop in temperature throughout the state.

**New Hospitals in Cuba.**—Among the appropriations for public works recently made in Cuba there are several items for hospital construction, as follows: 40,000 pesos for a hospital at Bayamo; 300,000 pesos for repairs to the insane asylum, and 300,000 pesos for the completion of the hospital of Santiago de Cuba.

**Central American Sanitary Conference.**—An international sanitary conference was recently held at La Unión, El Salvador, to discuss methods of cooperation in the yellow fever campaign conducted by the Rockefeller Foundation. Dr. T. C. Lyster, formerly of the U. S. Army, is now in charge of the campaign in Central America.

**University of Rio de Janeiro.**—The medical school, the school of law and the polytechnic school of Rio de Janeiro have now been officially grouped as the University of Rio de Janeiro by a recent government decree. The rector of the university will be ex officio president of the superior council of instruction. There is great rejoicing in scientific circles in Rio.

**Memorial to Hernández.**—A national committee has been at work during the year since the death of Dr. J. G. Hernández of Caracas, and recently completed its labors by unveiling an oil portrait in the university, with memorial tablet, and also a monument in the cemetery, and founding a biennial prize in his name with a fund of 15,770 bolivars. The tablet and monument bear the inscription "Homenaje Nacional." The ceremonies included a large representative gathering and addresses, with music, in the university, and also ceremonies in the cemetery. The *Gaceta Médica* of Caracas devotes nearly its entire issue for September 30 to this tribute to the eminent physician, who was killed in an automobile accident in June, 1919.

**Personal.**—Dr. Delfor del Valle, Jr., has been appointed director of the Asistencia Pública y Administración Sanitaria at Buenos Aires.——Dr. J. J. Callejas of Honduras has left for a trip to the United States.——The Academia Nacional de Medicina of Rio de Janeiro, on the occasion of the recent visit of the king and queen of Belgium, paid tribute to the queen's work during the war in promoting medicine and hygiene, and unanimously elected her perpetual president of the Academy.——Dr. O. da Fonseca and his son of Rio de Janeiro have been sent to the United States on a scientific mission, mainly on behalf of the Instituto Oswaldo Cruz.——Dr. L. F. Calderón has been appointed rector of the Facultad de Ciencias Naturales y Medicina at Bogota to fill the vacancy left by the resignation of Dr. Pompilio Martinez.——Dr. Francisco Peña Trejo of Salvador is now traveling in the United States. While in this country Dr. Peña will study the methods for the treatment of tuberculosis in several sanatoriums.——Dr. E. M. Martín has been designated representative of Guatemala at the Sixth International Sanitary Conference of the American Republics.

**Public Health Work at Santo Domingo.**—The 1919 report of the Secretary of Sanitation and Beneficence of Santo Domingo reviews the public health work accomplished since the establishment of the military government in Santo Domingo in November, 1916. The new sanitary law creating a national department of sanitation and beneficence was put in force Jan. 1, 1920. This law requires all municipalities to appropriate from 10 to 15 per cent. of their income for public health work, the municipal health budgets being subject to approval by the secretary of sanitation. The practice of medicine, pharmacy, etc., is placed under the control of the Department of Sanitation. Some very important public health regulations were adopted during the year 1919, especially as regards the prevention, quarantine and control of communicable diseases. The construction of a national leprosarium was begun during the year. Among the reportable diseases, special mention should be made of "bubas" or yaws, 1,745 cases of which were reported. A commission of Harvard physicians is now investigating the disease. The national public health appropriation has increased from $5,000 in 1916 to over $180,000 in 1920; this is in addition to $190,000 to be spent by the municipalities.

## FOREIGN

**Course in Dietetics in Copenhagen.**—An evening graduate course in dietetics and lavage of the stomach is being held by Prof. C. Jürgensen. The course is free to physicians.

**China Medical Missionary Association Election.**—Dr. Charles F. Johnson of the American Presbyterian Mission at Tsinan was elected president of the China Medical Missionary Association for a term of two years at the recent annual conference held in Pekin.

**Personal.**—The *Münchener medizinische Wochenschrift* states that Dr. O. Killiani, who until the war was at the head of the German Hospital in New York, has accepted the charge of the surgical department of Dr. W. v. Kaufmann's sanatorium at Partenkichen in upper Bavaria.

**Physician at Head of Paris Hospital System.**—M. G. Mesureur has been retired on a pension from his long service as director of the Assistance Publique, and he is succeeded by Dr. L. Mourier, member of the house of deputies and formerly undersecretary of state for the military medical department.

**Dr. Steinach Goes to Stockholm.**—The *Deutsche medizinische Wochenschrift* states that the Vienna physiologist, Prof. E. Steinach, is intending to remove to Stockholm, where he will continue his research on physiology and biology, including the "puberty gland." His work on the summation of single ineffectual stimuli as a general vital phenomenon was published in 1908. He is now 58 years of age.

**Prizes for Medical Research.**—The *Zeitschrift für Tuberkulose* of Berlin relates that the Selmar Solmitz Foundation offers four prizes of 2,000 marks each for the best work on radiotherapy of cancer; on the progress in treatment of wounds in peace; on infant feeding in the five years ending April, 1920; and on the best advice for a tuberculous man or woman, with two minor children, who has been dismissed improved from a sanatorium and has an income of 1,000 marks a month.

**French Neurology Congress.**—The next Congrès des aliénistes et neurologistes of French-speaking countries is to convene at Luxembourg in 1921 with Drs. Meige of Paris and Buffet of Luxembourg to preside. The following year the meeting is to be held at Quimper with Professor Lépine in the chair, and the year after that at Besançon. The three topics appointed for discussion at the approaching twenty-fifth meeting are the consciousness of the morbid condition in psychopathies; simulation of mental disease, and traumatic epilepsy.

### Deaths in Other Countries

Dr. **Diógenes Decoud,** one of the leading surgeons and editors of Argentina, director of the *Semana Médica* of Buenos Aires, and for twenty-five years professor of surgery in the university until his recent retirement, member of the National Board of Public Health, and author of numerous medical works, of the prose poem, "La Atlantida," and a history of medicine in Argentina, published in 1893.——Dr. **A. Foges,** privat-dozent in obstetrics and gynecology at the University of Vienna.——Dr. **R. Villavicencio** of Caracas, a former professor of the Universidad Central of Venezuela.——Dr. **F. Wittrup** of Copenhagen.——Dr. **J. C. Güell** of Bogota, professor of surgery in the Facultad Nacional de Medicina at Bogota and of anatomy in the School of Fine Arts. At one time he was governor of the state of Bolivar and member of the national house of delegates, and was the founder of the Academia de Medicina.——Dr. **Zenón Solano,** director of hygiene at Bogota.——Dr. **Yves Delage,** professor of comparative anatomy and physiology at the Sorbonne, Paris, director of the *station biologique* at Roscoff, and author of numerous works on general biology.——Dr. **P. Spiess,** an orthopedist of Basel, lost his life in Alpine climbing.——Dr. **M. Valladão,** of S. Paulo, Brazil.——Dr. **Julia Gutiérrez C.** of Santiago, Chile, practicing both medicine and surgery and superintendent of the training school for nurses.

# Government Services

### Army Abandons General Hospitals

During the last year the Medical Department of the Army abandoned twenty-one of its thirty general hospitals; seven were turned over to the U. S. Public Health Service, and the others were closed. All told, 57,000 beds were released, involving the movement of only 3,776 patients. Practically all the patients who remained under the care of the Army after the World War have been discharged cured with the exception of a small number transferred to the Public Health Service.

### Economic Loss from Venereal Diseases in Army

The Surgeon-General's Office recently compiled statistics on the cost of venereal diseases in the Army. During the calendar year ending Dec. 31, 1919, venereal diseases caused a loss of 1,923,420 days of duty among the troops. Since practically all of this time represents days spent in the hospitals under treatment for gonorrhea, chancroids or syphilis, and the estimated cost of such hospitalization is $7 per day, the direct loss to the Army from these diseases was $13,463,940.

### Institute on Venereal Diseases

It is reported that favorable responses are being received from state boards of health and other medical organizations throughout the country to the invitations of the Public Health Service to attend the Institute on Venereal Diseases in Washington, D. C., beginning November 22. Most of the state boards of health will send official representatives and there will be many unofficial delegates. The Institute will last ten days and will be immediately followed, December 6, by a six-day session of the All-America Conference on Venereal Diseases, at which physicians, administrators and other experts of the western hemisphere will discuss the best methods of combating venereal diseases.

### Inspection of Government Tuberculosis Hospitals

Surgeon-General Cumming has announced the completion of plans for the treatment of the 15,000 tuberculosis patients in the Public Health Service hospitals in the country. A committee of tuberculosis specialists not members of the Public Health Service, will visit the special hospitals to study the prevailing conditions with a view to standardization of the methods of treatment. Drs. David R. Lyman, Wallingford, Conn., Victor F. Cullen, State Sanatorium, Md., and Martin F. Sloan, Towson, Md., will make the inspections in the eastern states; Dr. George Thomas Palmer, Springfield, Ohio, in the central states, and Dr. Henry Hoagland and possibly others in the southwestern states.

### Army Medical Department Notes

Surgeon-General Ireland has issued orders that the complement fixation test be uniformly employed in the military service for the diagnosis of tuberculosis. Medical officers are urged to apply the test especially in cases presenting suspicious clinical symptoms when the sputum is negative for the bacillus. The Army Medical School will supply an antigen for use in the test to the laboratories of all army general hospitals. —— Manufacturers of medical equipment and dealers in medical supplies will hereafter be given an opportunity to test their products for use in the Army. An agency of experimental work, known as the Medical Department Equipment Laboratory, has been established for the purpose of cooperating in the development of the technical equipment and supplies of the Medical Corps.

### MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

*DISTRICT OF COLUMBIA*
Washington—Sinkinson, C. D., Jr.

*ILLINOIS*
Chicago—Blender, D. R.

*INDIANA*
Indianapolis—Hypes, F. E.

*MASSACHUSETTS*
Worcester—Dunphy, P. J.

*NEW YORK*
Syracuse—Rulison, F. C.

*PENNSYLVANIA*
Philadelphia—Skillern, P. G.

*TENNESSEE*
Chattanooga—Watson, R. B.

# Foreign Letters

## PARIS

*(From Our Regular Correspondent)*

Oct. 15, 1920.

### Crisis in Scientific Laboratories

A touching appeal for the cause of microbiologic research was recently made by Dr. Charles Nicolle, director of the Pasteur Institute of Tunis, in a letter published in the *Temps*. He had just completed a stay of two months in France, and he returned appalled at the conditions which he found. The country which has produced Pasteur, Duclaux, Laveran and Roux, to mention only a few of the more illustrious scientists, and which received Metchnikoff with open arms, without the least compunction is permitting the decline of a science that has given France a large part of her past glory and from which she has always derived the first benefits.

Nicolle admits that it would be unfair to demand that the state support the laboratories, especially at the present time. However, he thinks that it is not the teaching laboratories from which we should expect to see great discoveries come forth: he who teaches is an erudite, while the mentality of the research worker is entirely different, and it is through other than teaching institutions that all real progress in microbiology must come. The typical institution of this kind in France and the one most widely known is the Pasteur Institute of Paris, the parent establishment whose offspring may be found in France, the colonies and abroad. The Pasteur Institute is a private establishment and does not serve as a teaching medium. The members of its staff devote all their efforts to scientific investigations, and in the thirty-five years of their endeavors they have shown marked ability. The institute derives its income from the sale of biologic products and from donations, and today neither of these sources furnishes ample means. Not having the inexhaustible resources of the government back of it, it is now merely vegetating, and it is only by a miracle that more can be accomplished.

Nicolle, therefore, addresses to the public an appeal for support of the microbiologic laboratories, pointing out that the matter should be of special interest to the farmers, for instance, for it makes possible a continuation of the researches on aphthous fever, a disease that has been responsible for the loss of millions and constitutes a permanent menace to agriculture. On the other hand, Nicolle calls attention to the difficulty of inducing young men to enter the laboratories, for the small budgets make a career in a laboratory anything but profitable.

### Census of France

A decree has been issued fixing March 6, 1921, for the taking of the population census under the charge of the mayors of towns. Although the census is normally taken every five years, the war prevented the enumeration scheduled for 1916, and there is therefore an interval of ten years between the last two counts of the population.

### Membership in the International Surgical Society

At the last congress of the International Surgical Society, held at Paris in July under the presidency of Dr. W. W. Keen of Philadelphia, it was unanimously resolved to exclude the surgeons of the central empires from membership. The national Swiss committee has felt impelled to explain the motive underlying this action, as the daily press has completely misinterpreted the occurrence by pretending that the surgeons of the central empires were barred because of their professional conduct. The only reason advanced for exclusion of these surgeons was based on a condemnation of the

manifesto of the ninety-three intellectuals. In fact, the manifesto is generally considered an expression of the mentality of the German intellectuals, as its antiscientific principles have never been disavowed. The absence of German surgeons among the signatories to the manifesto demonstrates clearly that the action of the society was founded on a matter of principle and not on personal considerations or on questions affecting only the surgical profession. Representatives from neutral countries remarked at the committee meeting that the action of the congress should not create a permanent condition, to which the answer was made that there was no intention of continuing the war on the fields of science, but that after admission of the central empires to the League of Nations the decision to exclude them from the society would be revoked. By disavowing the principles enunciated in the manifesto, the representatives of the central empires would make it possible for their late enemies again to extend the hand of fellowship. An understanding based on mutual respect cannot be hastened by an untimely move, and it is best to trust the matter to future developments. It does seem singular, however, that the reconciliation of men of science should be longer deferred than in the commercial world; but it should not be forgotten that the intellectual bonds are rooted deeper than the material bonds and, once uprooted, they are difficult to revive.

### The Rôle of the United States in the Antituberculosis Campaign

I have repeatedly referred to the excellent results that have been obtained through the collaboration of the United States in the public health campaign of France, especially in the campaign against tuberculosis. The Comité national de défense contre la tuberculose includes among its membership Professors Calmette, Letulle and Léon Bernard, as well as Dr. Linsly R. Williams, director of the American Commission for the Prevention of Tuberculosis in France (Rockefeller Foundation), and his assistants, Drs. B. L. Wyatt and A. Bruno, and Miss E. Crowell. Since the beginning of 1920 the Comité national has published a bimonthly *Bulletin* recording the transactions of the meetings of the committee and containing information relative to the antituberculosis campaign throughout the world. This journal is published through the cooperation of the American commission. The last number contains a plan for the departmental organization of the antituberculosis campaign and a description of the equipment of a social hygiene and tuberculosis dispensary.

### Prevalence of Trachoma

The minister of hygiene recently directed the attention of the Académie de médecine to the frequency of granular conjunctivitis in certain regions of France, especially around Marseilles. Based on the results of a survey among the schoolchildren of Marseilles, it is estimated that the incidence of the disease is about 4 per cent., sufficiently high to call for energetic measures of control. Trachoma is prevalent in Algeria and in most of the French colonial possessions and protectorates, and ophthalmologists of Marseilles are agreed that it attacks especially the foreigners, and above all those coming from countries of the Mediterranean littoral. The war caused a considerable migration across France, and undoubtedly this is destined to continue for some years more. It follows naturally that this disease, of which the principal focus in France appears for the time limited to the surroundings of our most important Mediterranean port, where the foreign population (especially from the Levant) is most dense, threatens to extend with great intensity over the whole national domain wherever numbers of immigrants from the French protectorates are at present being directed. The various measures for limiting the importation and spread of trachoma can be effectively applied only if the disease is included among the reportable communicable diseases; with this purpose in view, the minister of hygiene has requested the Académie de médecine to study the question and to make appropriate suggestions.

### French Congress of Surgery

The opening meeting of the twenty-ninth congress of surgery was held, October 4, in the amphitheater of the Faculté de médecine de Paris, under the auspices of Hon. André Honnorat, minister of public instruction. As an evidence of its respect for Belgium, the congress departed from provisions of its statutes by electing Dr. Depage, professor of clinical surgery at the University of Brussels, as president for this year. A large number of Belgian surgeons attended the congress. The inaugural address of Dr. Depage was devoted to an exposition of the modern conceptions of hospital organization. Hospitals, in the opinion of Depage, are afflicted with the one congenital defect that from earliest times they have been intimately associated with works of benevolence. Traditionally, the hospital is still a charitable institution; its whole organization is based on sentimental factors, and its chief support is derived from gifts. The costs of caring for the sick are paid out of the sinking funds, and it might even be in bad taste to consider the hospital as a potentially productive institution. Its administrative machinery reflects the demand for economic management; the director is charged especially with the internal discipline and the supervision of the servants, and the entire personnel is thus placed under the authority of an administrative head, to whom one can hardly attribute competence in medical matters. This point of view has really lagged behind our social development. It takes no account of the fact that each individual of a community represents a certain social capital which becomes nonproductive in time of illness, and that restoration to health represents an increase in productive capital. Society, therefore, derives a special benefit from the hospital if the maximum number of recoveries is obtained with a minimum loss of time. It is only a step from this conception to the industrial organization of hospitals. The expenses of treatment should no longer be considered as unproductive, for they are balanced by the "capital recoveries" returned to the community.

In proceeding on these principles, the administrative policy of the hospital should be radically changed along lines similar to factory organization. The director or hospital functionary of today should make room for a general business manager, perfectly conversant with hospital work and capable of assuming full responsibility. The prime duty of the general manager will be to watch the morale of the establishment, to eliminate the deadly routine, and to change, if necessary, the mental complexion of the personnel. After the various departments have been reorganized on a scientific basis, cohesion and cooperation should be established among them, as is necessary in any successful industry. In dealing with the hospital as with a factory, the atmosphere of altruism and benevolence, without which all material efforts would prove unavailing, should not be excluded.

### Mobile Contagious Disease Laboratory

A mobile laboratory has recently been organized in Paris for the purpose of furnishing technical equipment and assistance to any district in the city whenever a communicable disease may be endangering the public health. On such occasions it will reinforce the local sanitary organizations if these are considered inadequate to face the exceptional circumstances, and when necessary it will coordinate and direct all preventive efforts. The laboratory is fully equipped to make all necessary bacteriologic examinations and to carry out all measures of disinfection and deratization.

## BELGIUM

*(From Our Regular Correspondent)*

Oct. 15, 1920.

### Fraudulent Substitutes for Neo-Arsphenamin

In the course of the last pharmacy inspection it was ascertained that neo-arsphenamin, which can enter Belgium only through fraudulent procedure, has been the object of serious substitution. In seven instances incompletely soluble substances were being sold as neo-arsphenamin. Even some of the soluble substitutes might provoke serious reactions, and it is necessary to observe certain precautions. For use in emergencies, M. de Myttenaere suggested to the Académie de médecine a series of qualitative and quantitative tests by which the purity of the products can be determined.

On the other hand, a standard dose of arsphenamin may prove toxic although its chemical composition does not vary from that of a safe product. Under these conditions a physiologic test is made. However, such a test is costly, and can be carried out only by the manufacturers. The scientific competence of the personnel and the adequacy of equipment of the producers is therefore considered a sufficient guarantee for the products of the manufacturers and importers.

In some countries the state enforces stringent regulations governing the chemical composition and physiologic action of these preparations, but in Belgium, the government will not be able to forego periodic examination of the factory products. Physiologic control being necessary, M. de Myttenaere proposed that the academy request that as an urgent measure the government regulate the sale of arsphenamin as it has done with antidiphtheritic serum.

### The Prohibition Movement

Shortly after the armistice, a law was passed prohibiting the retail sale of alcoholic beverages; but this law has not been rigidly observed, and at present there is hardly a town or village where liquor cannot be readily procured. In order to assist in the fight against this evident danger, the Société médicale belge de tempérance has inaugurated a new campaign and has subscribed to the principles enunciated by the Ligue contre l'alcoolisme, which are substantially as outlined below:

#### IMMEDIATE MEASURES

The manufacture, transportation, wholesale and retail sale, keeping for sale, distribution and gratuitous disposal of alcohol for beverage purposes are prohibited except for industrial and pharmaceutic use.

The importation, transportation, wholesale and retail sale, keeping for sale, distribution and gratuitous disposal of wines containing more than 18 per cent. of alcohol and of beers containing more than 7 per cent. of alcohol are prohibited.

The importation of distilled alcoholic beverages and liquors is prohibited.

#### ULTIMATE MEASURES

The state shall have an exclusive monopoly of the manufacture and sale of potable alcohol necessary for the production of yeasts and for pharmaceutic purposes, as well as of industrial alcohol.

The state shall regulate the sale of wines and beers according to their alcohol content.

It shall limit the amount of alcoholic beverage to be sold.

It shall encourage all measures designed to assist the propaganda against alcoholism.

The section of sociology of the Solvay Institutes has made a careful study of the question of state control of alcohol and has prepared a preliminary draft of a law to regulate the sale of liquors. This law makes the traffic in alcohol, brandies and spirituous liquors a state monopoly and intrusts their purchase and sale to the excise office.

## MADRID

*(From Our Regular Correspondent)*

Oct. 4, 1920.

### The General Physician in the Epidemiologic Campaign

Dr. Marañon, the man in charge of the infectious wards of the general hospital of Madrid, the only hospital where contagious patients are admitted in Madrid, recently discussed the part that the general physician should take in the epidemiologic campaign. In his opinion the general essential in the control of infectious diseases is that the general physician should make an early diagnosis and, after diagnosing the case, report it immediately, as required by law. In the General Hospital of Madrid the cases cannot be separated, a condition which compels the thorough enforcement of all possible prophylactic measures. Marañon divides infectious diseases into those transmitted chiefly by the secretions of the upper respiratory and the gastro-intestinal mucous membranes; by direct contact by the skin; by intestinal secretions; by milk, and by parasites and insects. In the first group he places measles, scarlet fever, influenza, whooping cough, cerebral spinal meningitis and mumps. His experience has confirmed the contagiousness of measles and scarlet fever from their beginning so that he advises an early prophylaxis. In his opinion influenza is contagious only in the first few days, probably not beyond the third day. He mentioned a curious observation. During the influenza epidemic, when there were many patients with pneumonia and bronchopneumonia together in the wards, there occurred hardly any contact infections among the other patients. The patients with simple influenza without pneumonia never contracted the latter. However, the influenza epidemic had barely come to an end before there appeared another epidemic of typhoid fever. The wards became filled with typhoid patients. Apparently there was some pneumonia patient left from the influenza epidemic, and the result was a severe outbreak of pneumonia among the typhoid patients, with more than twenty cases, all of which but three ended fatally. Marañon does not believe that there is any sure prophylactic against the disease, but preventive vaccination offers some hope. He does not consider that protracted isolation for whooping cough has any scientific basis, and places his reliance on early diagnosis, the isolation of the child during the catarrhal period, and the careful disinfection of the patient's clothing and other personal objects. Cerebrospinal meningitis is also contagious only during the first few days, during the catarrhal period. He insists on the disinfection of all objects touched by the patients. He saw in Madrid a case in which the disease was almost undoubtedly transmitted by some infected clothing sent from Granada. He considers virtually useless and almost harmful the disinfection of the throat by means of gargles, and considers that local treatment with a very strong polyvalent serum is more logical. In all these diseases, as well as in mumps and poliomyelitis, he considers Milne's disinfection method of value. He states emphatically that lethargic encephalitis is a noncontagious process of perinfluenzal nature.

In the group of the diseases transmitted directly by the skin he mentions smallpox, chickenpox and erysipelas. In smallpox all the skin surface is highly contagious. This contagiousness begins early and lasts many days after the process ends clinically. Its germ is also the one that remains longer in the clothing and other objects touched by the patients. A letter written by a smallpox patient in the desquamation period carried the disease to a distant town, as observed personally by the speaker. He had placed erysipelas in the same group because he had become convinced of the important part played by objects contaminated by the streptococcus in the spread of the disease.

The third group is formed by those processes transmitted by intestinal secretions, such as typhoid fever and allied diseases, cholera and bacillary dysentery. In typhoid the patient as well as the carrier must be indicated. The physician, therefore, should not confine himself to the cure of the patient but must aim at ending the elimination of germs in the urine and the stools of the convalescent. In the ten years he has treated this kind of patients, amounting to nearly 2,000, he has seen only one case in which direct contact could be blamed for the spread of the disease with any degree of certainty. He did not dwell on the epidemiology of milk-borne diseases, a group represented by foot and mouth disease, though in some cases this disease can be transmitted by the blood, Marañon himself being an instance of this.

The last group of diseases includes typhus fever, malaria, plague, yellow fever, recurrent fever, kala-azar and trypanosomiasis. About typhus fever he contented himself with saying that if it spreads at all it will be the physician's fault for not making the diagnosis in time. He recalled that the delousing idea was originated by a Spaniard, Dr. Cortezo, in 1903. This is accomplished in Dr. Marañon's hospital by means of a hot soap bath, shaving of the whole body, and two daily applications of a 20 per cent. alcoholic solution of naphthalene. Lice must be destroyed in both the person and the clothing of those close to the patient. Clothes can be disinfected cheaply either in a closed room with sulphur or by being placed in a metal box with benzene.

## VIENNA

*(From Our Regular Correspondent)*

Oct. 12, 1920.

### Census of Cases of Venereal Disease

From November 14 until December 15 of this year, a census of all cases of venereal disease will be taken, in order to reduce the fight against it to a scientific basis. The ministry of public health has issued an order to all physicians and medical institutes, giving details of the intended investigation, and will supply census cards containing all the items to be filled out by the physician. Naturally, all precautions are taken to insure professional secrecy. The names of the patients will not figure on these cards, nor will the physician or the patient be subject to any inconvenience or discomfort. As there are at present 6,006 medical men entitled to practice or work in hospitals in Austria, the work entailed will not be too heavy a burden on the individual. It is planned to follow up, at the same time, the after-history of the cases, to keep apart the record of fresh cases from those of old standing, and to differentiate also the cases according to the treatment adopted and the result obtained. Precaution will also be taken against a double census, i. e., patients being treated synchronously by two or more physicians, or drifting from one man to another. Since the number of sexual cases is increasing to an alarming degree, and the danger offered by this problem is real, public sentiment is strongly in favor of this step by those who are in charge of public health work.

### Outbreak of Enteritis Caused by Unwholesome Bread

The unsatisfactory nature of conditions prevailing here was recently illustrated by a peculiar incident that greatly alarmed the populace. From different parts of the city, reports reached the board of health that practitioners were observing many cases of gastro-intestinal trouble and skin disorder for which no apparent cause could be given. The persons affected comprised all classes of the population and all ages except infants. It transpired that the cause was to be sought in the composition of the bread sold to the people. Investigation disclosed that for about three weeks the flour supplied by the government to the bakeries consisted of a mixture of 40 per cent. wheat or barley flour, 30 per cent. maize (Indian corn) and 30 per cent. of dried potato flour. The maize was old and of unpleasant odor, and must have suffered from decomposition. As bread baking is still under control of the government, all bakeries were supplied with the same uniform mixture. The physicians noted a peculiar similarity of the symptoms of the present disease with those of mild pellagra: diarrhea, furunculosis (?) and dermatoses. Indignation ran high against the officials responsible for the use of bad maize. The excuse, that financial considerations required the use of the old stock, were of course not accepted, and the government hastened to quiet the people by promising to stop the practice. In future bread will be produced from a mixture of 70 per cent. wheat or rye flour, 20 per cent. good maize and 10 per cent. potato flour. During the war, even a higher percentage of maize and potatoes was used, without any ill effect, if the materials were of good quality. Such bread is coarse and crumbly, but still not deleterious to health, as proved in southeastern Europe, where maize bread is constantly used without any harm. But the enfeebled condition of the alimentary canal in the bulk of our population here caused a rather severe reaction to the ingestion of even small quantities of the unsuitable food.

### Government Action to Reduce the Price of Medicines and Drugs

A large quantity of various remedies, comprising chiefly pharmaceutic articles like acetylsalicylic acid, caffein, iodin, morphin, cocain, codein and other alkaloids, has been procured by the government in foreign markets and distributed to the chemists and the dispensaries of this country, in order to lower prices. People are being informed that they will obtain these remedies at the low prices fixed by the government, and thus the profiteering in this line is being stopped. It must be mentioned that for a long while a prescription was an extremely expensive thing for the bulk of the city population, owing to the exorbitant prices charged for even simple pharmaceutic goods by the apothecaries. By means of a central apothecary board, the distribution of remedies takes place according to the demand, and the quality of these substances is now guaranteed by the fact that supervision is being exercised by persons in a position to know. Thus, the substitution of active medicines by less effective ones, or the contamination of drugs, will be done away with, owing to the careful control of the whole trade. It may be added that cod liver oil, a substance urgently wanted for our children, was not long ago precious and scarce. Gifts from the Anglo-American Society of Friends, as well as Scandinavian presents to the medical organization, comprising considerable quantities of this remedy, were received recently and are being used chiefly in the pediatric clinics. What small quantities are sold to the public are at a price meant only to cover the costs of manipulation.

### Difficulties of the Medical Profession

One of the most urgent problems now confronting the medical profession is the conflict between the krankenkassen (panel or club institutes) and the physicians. The continued rise in prices (or the reduced buying power of money) has forced physicians to increase their fees and to demand larger payments from the corporations with which they have contracted for medical work. The krankenkassen have recently "regulated," that is, increased the salaries of their officers, clerks and servants, but omitted to take similar action in regard to their physicians. At present the best paid physician of a panel or sick club gets less than an unmarried office boy! According to the social-democratic principle, as it has been formulated here recently, manual labor is much more necessary than brain work and the salary scale has been

arranged accordingly in these clubs, which are exclusively under social-democratic control. As negotiations to increase the rate of medical fees to an adequate standard were futile, the organization served the krankenkassen with an ultimatum stipulating that unless the propositions of the physicians—100 per cent. increase of fees, payment of office rent and 25 per cent. of the yearly fees in addition for the purchase of articles of clothing—were accepted within a week, all physicians would stop treating the members of the krankenkassen, except as private patients at the rates of private practice. This was effective. At the very last moment an understanding was reached and 80 per cent. of the demands were conceded. But a few days later, the krankenkassen tried to alter the contract by conceding the 25 per cent. addition for this year only. Renewed conflict, which would find the profession in a rather indignant mood, will be obviated, for even the socialist government is enraged at the attitude of the krankenkassen. While this fight was going on, another attack on the profession was contemplated but successfully averted. The government had worked out a plan for an advisory board of health to which a number of nonmedical members would have been elected or nominated, with the probability that the medical members would be in the minority. Apart from that, the most important of our medical bodies, the "organization," had not been invited to take part in the discussions and deliberations, nor had it been informed officially of the plan. A serious conflict arose between the organization and the ministry, as the former refused to be a party of any board on which nonmedical men could decide in medical matters against medical opinion. At last, the representatives of the profession received the assurance that the board will be constituted in a manner that will obviate this difficulty.

**Winter Semester at the Vienna University**

The new semester (winter term) of the university began with the end of October and will last until March 1. Henceforth the regular courses and classes at the hospitals and institutes will be open to all students, without regard to nationality and creed. About 450 different lectures and courses will be delivered by the professors, privatdocents and assistants of the clinics. Special stress is being laid on so-called "privatissime" or classes limited to from two to four pupils, on the ground that such individual instruction is apt to give better results for graduate physicians. As a rule, the fee is about 2-3 kronen per hour for men not producing an autumn diploma; this fee has to be paid by the whole group taking the class, not by each pupil. Classes will be held in bacteriology, pathologic anatomy, otology, rhinolaryngology, materia medica, medical chemistry, ophthalmology, dermatology, and syphilis, surgery and diseases of children. The outpatient departments attached to each of the clinics are also at the disposal of the lecturers and their pupils, thus insuring a great amount of clinical material.

## Marriages

CHARLES ELLSWORTH HENEBERGER, Atwood, Kan., to Miss Ruth I. Jones of Chicago, at Denver, October 20.

ARTHUR HERMAN FAHRNER, Joliet, Ill., to Miss Agnes Coulehan of Austin, Ill., October 16.

WILLIAM ROBERT BLACKMON, Rock Hill, S. C., to Miss Lila Howell of Clover, S. C., October 20.

JOHN RILEY MERRIMAN, Springfield, Ill., to Miss Dorothy Carroll of New York, October 27.

JOHN IRWIN TAYLOR to Miss Bessie Curd Nourse, both of Russellville, Ky., September 21.

FRANK WALLS YOUNG, Chicago, to Miss Ruth Rendleman of Cairo, Ill., October 16.

## Deaths

**Samuel James Meltzer** ⊕ New York; University of Berlin, 1882; died, November 7, aged 69. His death resulted from pulmonary edema following an attack of angina pectoris. Dr. Meltzer was born in Courland, Russia, March 22, 1851, received his preliminary education at Königsberg, Prussia, and his college and medical education at the University of Berlin. He studied physiology under Prof. Hugo Kronecker, with whom he made early important studies on the deglutition reflex. He came to the United States in 1883, and engaged in the practice of medicine in New York, serving for many years as attending physician to the Harlem Hospital. Dr. Meltzer was a productive contributor to the literature of biology, physiology and experimental medicine. He made numerous studies on the physiology of digestion, respiration and the peripheral circulation, on the pharmacology of magnesium salts, on the vasomotor effects of epinephrin and on the relation of the pancreas to hyperglycemia and glycosuria with reference to diabetes. His investigations on the action of the magnesium salts led to the introduction of magnesium sulphate for the treatment of tetanus. In 1909 he introduced the method of intratracheal insufflation for the maintenance of artificial respiration and for the administration of anesthetics. The latter procedure made possible much of the detailed work on experimental thoracic surgery for which he was noted in his last years. In 1906 Dr. Meltzer was appointed head of the department of physiology and pharmacology of the Rockefeller Institute for Medical Research, and he retained this position until his death. He was active in many medical and scientific organizations, and founded the Society for Experimental Medicine and Biology, the American Association of Thoracic Surgery, and during the war, the Medical Brotherhood for the Furtherance of International Morality. He was sometime president of the Association of American Physicians, American Physiologic Society, Association for the Advancement of Clinical Research and Harvey Society; a member of the National Academy of Sciences, Association of American Pathologists and American Society of Naturalists, and other societies. In 1917, he represented the Section of the Practice of Medicine in the House of Delegates of the American Medical Association. Dr. Meltzer was commissioned major in the Medical Reserve Corps, U. S. Army, in 1917. As an enthusiastic research scholar his name was familiar to medical scientists throughout the world. He possessed an idealism peculiarly fitting him for intensive laboratory studies though perhaps not easily coinciding with the practical side of public life. His associates in scientific life regret the passing of a high minded fellow worker.

**George S. Gerhard,** Philadelphia; University of Pennsylvania, Philadelphia, 1870; aged 71; a member of the Medical Society of the State of Pennsylvania; one of the founders and for twenty-seven years physician-in-chief of the Bryn Mawr (Pa.) Hospital; died in that institution, October 27, from heart disease.

**William Elbert Burt,** Talladega, Ala.; Tulane University, New Orleans, 1906; aged 38; a member of the Medical Association of the State of Alabama; health officer of Talladega County and field agent, U. S. P. H. S.; died, September 30, from acute dilatation of the heart.

**Thomas J. Whitten,** Peoria, Ill.; Jefferson Medical College, 1867; aged 76; a member of the Illinois State Medical Society; a veteran of the Civil War; for more than half a century a medical practitioner of Peoria; died, October 31, from appendicitis.

**Brock Edward Cohoon,** Seattle; University of Oregon, Portland, 1911; aged 36; a member of the Washington State Medical Association; a specialist in diseases of the ear, nose and throat; died in Santa Monica, Calif., October 22, from heart disease.

**Charles Spencer Kinney,** Easton, Pa.; New York Homeopathic Medical College, New York, 1879; aged 65; a specialist in psychiatry; a member of the American Medico-Psychologic Association; died, October 27.

**John Dexter Andrews,** Chicago and Evanston, Ill.; Chicago Medical College, 1878; aged 66; for forty-three years assistant chief surgeon of the Chicago and Northwestern Railway; died, November 6, from myocarditis.

**Domingo Bornio,** New Orleans; University of Louisiana, New Orleans, 1882; aged 61; a member of the Louisiana State Medical Society; died, July 17, from carcinoma of the liver.

⊕ Indicates "Fellow" of the American Medical Association.

**Edmund Calvin Park,** Manning, S. C. (license, Illinois, 1877); aged 83; for nearly half a century a medical practitioner of Flora, Ill.; died at the home of his daughter in Manning, October 8.

**Richard C. McCain,** Kentland, Ind.; Louisville (Ky.) Medical College, 1875; aged 68; also a druggist; from 1905 to 1909 a member of the state senate; died suddenly, October 17, from heart disease.

**Maurice L. Radin** ✠ New York; University of Kharkov, Russia, 1897; aged 49; assistant neurologist in Mount Sinai Hospital Dispensary; was accidentally asphyxiated at his home, October 28.

**Lovelace Foster Jackson,** Stallo, Miss.; Memphis (Tenn.) Hospital Medical College, 1904; aged 37; died in Newton, Miss., October 25, from knife wounds received a few days before.

**Charles F. Newman,** Brooklyn; Bellevue Hospital Medical College, 1881; aged 66; inspector in the Brooklyn Department of Health from 1887 to 1889; died, October 24.

**Joseph F. Purviance,** Jewett, Ohio; Philadelphia University of Medicine and Surgery, 1863; aged 84; a practitioner of Steubenville for half a century; died, September 4.

**Edith Josephine Strong,** Oakland, Calif.; Barnes Medical College, St. Louis, 1907; assistant physician at St. Anthony's Hospital, Oakland; died October 19, from botulism.

**William Barrow Mann,** Brockport, N. Y.; University of Buffalo (N. Y.), 1861; aged 82; surgeon on the receiving ship *Miami* during the Civil War; died, October 23.

**John J. Kemp,** Independence, La. (license, Louisiana); aged 80; a Confederate veteran; died at the home of his daughter in New Orleans, October 24.

**James A. McGinty,** Olyphant, Pa.; College of Physicians and Surgeons, Baltimore, 1904; aged 39; was struck by a train, October 22, and instantly killed.

**Isaac M. Martin,** La Harpe, Ill.; Hahnemann Medical College and Hospital, Chicago; aged 67; editor and founder of the *Quill;* died suddenly, October 18.

**Benjamin Herbert Young,** Amesbury, Mass.; Boston University School of Medicine, 1880; aged 66; died suddenly, October 23, from heart disease.

**Jessie Harriet Simpson,** Patton, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1905; aged 47; died in Banning, Calif., October 13.

**Zina Edward Dawson,** Wilsonburg, W. Va. (license, West Virginia, 1881); aged 69; died at the home of his son in Shadyside, Ohio, October 24.

**Gilbert Gullickson Herm,** Lake Mills, Iowa; Hahnemann Medical College and Hospital, Chicago, 1904; aged 50; died, October 20, from nephritis.

**Edwin L. Fitch,** Denver; State University of Iowa, Iowa City, 1885; aged 61; was found dead in his office, September 1, from cerebral hemorrhage.

**Douw Lansing Van Derzee** ✠ Dannemora, N. Y.; Albany (N. Y.) Medical College, 1898; aged 48; died, September 16, from cerebral hemorrhage.

**James L. Bell,** Highland, Ark.; Medical College of the State of South Carolina, Charleston, 1897; aged 52; died suddenly, October 26.

**Charles Horace Lusk,** Oakville, Ont.; Victoria University, Cobourg, Ont., 1867; aged 84; died in Toronto, June 1, from senile debility.

**Frank Wesley Nolan,** Springfield, Mass.; Yale University School of Medicine New Haven, 1898; aged 52; died, October 14.

**John Pfeninger,** El Reno, Okla.; Medical College of Ohio, Cincinnati, 1866; aged 79; died, August 24, from arteriosclerosis.

**Walter Guy Hudson** ✠ Yonkers, N. Y.; University of the City of New York, 1890; aged 51; died suddenly, October 30.

**J. Martine Kershaw,** St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1869; aged 74; died, October 18.

**George Alexander Lyons,** New Rochelle, N. Y.; Bellevue Hospital Medical College, 1877; died, October 12.

**Karl Kanzler** ✠ Saginaw, Mich.; University of Munich, Germany, 1882; aged 62; died, October 12.

**William M. Campbell,** Cohoes, N. Y.; Albany (N. Y.) Medical College, 1889; aged 59; died, October 21.

**Edward Stevens,** Washington, D. C.; National University, Washington, D. C., 1887; died, October 15.

# The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

## PARATHESIN NOT ADMITTED TO N. N. R.

### Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

The local anesthetic ethyl paraminobenzoate was first introduced as "Anesthesin" or "Anæsthesin." Ethyl paraminobenzoate is not patented in the United States and it may be manufactured therefore by any firm which chooses to do so. In order that a common name by which to designate the drug might be available, the Council coined the name "Benzocaine," as being short and easily remembered, but yet suggestive of its composition and character ("benzo" to indicate its derivation from benzoic acid and "caine" to indicate its cocaine-like properties). As the term "anesthesin" had become a common name for the drug, the Council recognized this as a synonym for benzocaine.

One of the accepted brands of benzocaine is "Anesthesin" manufactured by the H. A. Metz Laboratories, Inc. (see New and Nonofficial Remedies, 1920, p. 33). However, on April 19, 1920, the Metz Laboratories requested that its product be recognized under the designation of "Parathesin." As the use of one substance under several names causes confusion and retards rational therapeutics, the Council's rules provide against the recognition of proprietary names for nonproprietary, established drugs. In view of this and because the legitimate interests of the manufacturer may be safeguarded by appending his name or initials to the common name, benzocaine or anesthesin, the Council voted not to recognize the designation "Parathesin."

## HYPODERMIC SOLUTION NO. 13, IRON, ARSENIC AND PHOSPHORUS COMPOUND NOT ACCEPTED FOR N. N. R.

### Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Hypodermic Solution No. 13, Iron, Arsenic and Phosphorus Compound (Burdick-Abel Laboratory) is said to contain in each c.c.:

| | | |
|---|---|---|
| Ferrous citrate | 0.06 | Gm. |
| Sodium cacodylate | 0.06 | Gm. |
| Sodium glycerophosphate | 0.1 | Gm. |
| Chloretone | 0.005 | Gm. |

The preparation is advertised as "the old reliable hematinic" which is "indicated in all forms of anemia, where both red and white cells are low." It is for hypodermic or intramuscular administration. The product is inadmissible to New and Nonofficial Remedies because:

1. It does not contain ferrous citrate as claimed. Instead the iron is in the ferric condition, apparently in the form of the unofficial and unstandardized "iron citrate green" for which there is no evidence of superiority over the official iron and ammonium citrate.[1]

2. Its name gives no information on the form in which the iron, the arsenic and the phosphorus occur therein. The term "arsenic" does not indicate whether the mild cacodylate or the potent arsenous oxid is being administered nor does the term "phosphorus" tell the physician that he is administering the practically inert sodium glycerophosphate.[2]

1. Iron Citrate Green, THE JOURNAL A. M. A., Jan. 12, 1917, p. 135; Reports Council Pharm. and Chem., 1916, p. 42.

2. Glycerophosphates, THE JOURNAL A. M. A., Sept. 30, 1916, p. 1033; Reports Council Pharm. and Chem., 1916, p. 32. Sodium glycerophosphates. Reports Council Pharm. and Chem., 1916, p. 52.

3. The preparation is unscientific because (*a*) it is irrational to prescribe iron and arsenic in fixed proportions; (*b*) there is no evidence that the hypodermic or intramuscular administration of iron has any advantage over its oral administration and (*c*) glycerophosphates have not been shown to have properties other than inorganic phosphates and hence the administration of sodium glycerophosphate as a constituent of a hematinic is illogical.[3]

## MORE MISBRANDED PRODUCTS

**Dr. Clifton's Brazilian Herbs.**—Henry W. Clifton and Nancy A. Dix of Girard, Ill., shipped under the name of the Clifton Drug Company a quantity of this product in May, 1918. Analysis showed the preparation to consist essentially of a mixture of powdered vegetable drugs, among which were aloes, senna leaves, damiana leaves, uva ursi leaves, cascara bark and ginger. The nostrum was falsely and fraudulently represented as an effective remedy and cure for kidney, liver and stomach troubles, epilepsy, consumption, nervousness, rheumatism, etc. In January, 1920, the defendants pleaded guilty and were fined $50 and costs.—[*Notice of Judgment No. 7580; issued Oct. 8, 1920.*]

**Her-Vo.**—Seven dozen packages of this preparation consigned by the Her-Vo Mfg. Co., Camden, N. J., in May, 1919, were seized on the charge that they were misbranded. When analyzed by the Bureau of Chemistry, Her-Vo was found to consist essentially of cinchona alkaloids, strychnin, a laxative plant drug, essential oils, alcohol and water. The preparation was falsely and fraudulently represented as a remedy for asthma, bladder trouble, bronchitis, gastric catarrh, constipation, cramps, dyspepsia, flabby flesh, hysteria, night sweats, rheumatism, syphilis, vomiting of pregnancy, etc. In October, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product should be destroyed.—[*Notice of Judgment No. 7512; issued Sept. 24, 1920.*]

HER-VO
Trade Name
The Real Tonic
Is nature's own remedy: made from roots, barks, herbs and berries and contains no harmful drugs or irritating minerals.
It purifies the blood, tones the stomach and steadies the nerves.
For Sale at All Leading Druggists.
$1.50 PER BOTTLE.

**Acetylo-Salicylic Acid Tablets.**—In November, 1915, Harry A. Jame and Irving H. Annis trading as Jame & Annis, late of Chicago, shipped a quantity of these tablets from Omaha into the State of Minnesota. Analysis showed the tablets to contain 7.74 per cent. of acetanilid, together with starch and sugar. The tablets were declared adulterated because while they were labeled as containing 5 grains of Acetylo-Salicylic Acid they did not contain any Acetylo-Salicylic Acid whatever. They were declared misbranded because they were represented as Acetylo-Salicylic Tablets which they were not and furthermore they failed to bear a statement of the quantity or proportion of acetanilid which they contained. In January, 1920, the defendants pleaded guilty and were fined $25.—[*Notice of Judgment No. 7576; issued Oct. 8, 1920.*]

3. Iron Solution for Intravenous Therapy, Perkins and Ross, THE JOURNAL A. M. A., Nov. 14, 1914, p. 1778; Reports Council Pharm. and Chem., 1914, p. 125.

**Roentgen Rays in Service of Art.**—It has been found that the paints used in the paintings of the old masters are more opaque than those in use since, and roentgenoscopy is revealing restorations, additions or copies in the antiques, to a surprising degree.

# *Correspondence*

## EIGHTY-FIFTH ANNIVERSARY OF THE FOUNDING OF THE CANTON HOSPITAL

*To the Editor:*—During the present year the eighty-fifth anniversary of the Canton Hospital is being commemorated. This institution is the oldest and one of the largest hospitals in China. It is also the oldest missionary hospital in modern times. The Canton Hospital, or, as it is called in Chinese, the Pok Tsai Ye Uen or Hospital of Diffusive Benevolence, was founded in 1835 by the foreign merchants of Canton in conjunction with the missionaries of all Protestant denominations with work in south China. It has always been a union and interdenominational institution. During the first twenty years of its existence the hospital was housed in a building lent by the senior Chinese hong merchant.

The first surgeon to the Canton Hospital was Dr. Peter Parker, who is said to have opened China at the point of the lancet. He was a graduate of Yale University and later served the United States government as Commissioner to China. Dr. Parker was succeeded by Dr. John G. Kerr, who for forty-five years developed the institution and its associated activities.

Dr. Thomas R. Colledge, senior surgeon to His Britannic Majesty's commission in China and to the East India Company, was the first president of the society, which founded and maintained hospitals and dispensaries in different places in south and central China. Shortly after the establishment of the Canton Hospital, the chief superintendent of British trade in China, in referring to this institution, stated that the surgeon's knife was better calculated to conciliate the Chinese than any weapons of war.

Modern medical science in all its phases, was introduced into eastern Asia at the Canton Hospital, including medical education, the training of hospital assistants, and the translation and publication of scientific medical textbooks in the Chinese language; and the first medical discoveries were made there. From its inception there has been cordial cooperation between Americans, British and Chinese in the maintenance of the hospital, on the board of directors and staff. The American and British consul-generals of Canton are trustees. During the last eighty-four years, more than two million patients have been treated in the Canton Hospital and its dispensaries.

That the Canton Hospital is an essential institution is evident from the fact that even at the present time there is only one hospital bed to more than 10,000 people in the province of Kwongtung. The Canton Hospital serves this and the neighboring provinces, with a population of forty million people, from which localities, through the great ports of Canton and Hong Kong, diseases prevalent there may be carried to all parts of the globe.

Dr. Sun Yat Sen, first president of the Chinese Republic, was a student at the Canton Hospital medical school. President Lei Yuan-Hung, and the present president of China were generous contributors to the hospital. Recently, in appreciation of its past and present services to the people of China, commendatory resolutions were passed by the China Medical Missionary Association, and its South China branch, the Canton Missionary Conference and its board of cooperation, and by the Protestant missions working in south China. During the last five years, the China Medical Board of the Rockefeller Foundation has contributed toward the maintenance of the hospital.

Cordial letters of appreciation have been received from the president of China, from H. E. Chengting Wong, China's

representative at the peace conference and to the League of Nations, the civil governor of Kwongtung, the Chinese chambers of commerce of Canton and Hong Kong, the National Medical Association of China, and other representative organizations and individuals. The American and British consul-generals, the British chamber of commerce of Canton and American business firms have also testified to the essential work done by the Canton Hospital, which serves a great purpose in helping to harmonize the East and the West.

In order to commemorate the eighty-fifth anniversary of the foundation of the hospital, to keep pace with rapidly changing conditions in the Orient, and with progress in modern medical science, the directors and staff hope to be able to erect new buildings, suitably equipped.

J. Oscar Thomson, M.D., Canton, China.

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## VOCATIONAL REHABILITATION OF PERSONS DISABLED IN INDUSTRY OR OTHERWISE

*To the Editor:*—The federal act (Public No. 236, Sixty-Sixth Congress) to provide for the promotion of vocational rehabilitation of persons disabled in industry or in any legitimate occupation, and their return to civil employment, approved, June 2, 1920, is one of the most important laws ever enacted by Congress. The purposes of the act are to restore to economic usefulness those of our citizens and the aliens among us who have become disabled by injury, accident or disease to such an extent that they need vocational rehabilitation to enable them to carry on in a remunerative occupation.

No organization or body, either collectively or individually, has been or now is more concerned and gratified over this legislation than the medical profession, for physicians and surgeons have had the need of this economic restoration brought to them by seeing suffering, sadness and the outlook for a dark future for these unfortunates and their dependents. This is a big undertaking, and without unlimited outside assistance the agencies charged with the administration of the act cannot possibly succeed. Every agency, profession and individual will be called on to render all assistance in their power to fulfil this moral obligation.

Individual members of the medical profession for many decades have, in their locality, carried on this work in a limited way, by lending every assistance in finding suitable employment for the physically disabled, following them in their work, and never losing an opportunity to encourage them. The larger industrial corporations realized the good to be accomplished, and began vocational rehabilitation in a well organized way. The encouraging results stimulated this natural trend and, no doubt, were the guiding principles in the federal and state legislation. We must not for a moment depreciate the value of the efforts of organized labor in bringing about this legislation, for it is primarily effected and concerned from a purely human standpoint.

Under the provisions of the act, the government, through the Industrial Rehabilitation Division of the Federal Board for Vocational Education, will allot to the respective states, in the proportion which their population bears to the total population of the United States, sums of money for the promotion of vocational rehabilitation of persons disabled in industry or otherwise and their return to civil employment. The states participating will expend at least an equal amount of money for the same purpose. The agency which has immediate jurisdiction over and is responsible for the carrying out of this program in a state is the state board for vocational education. The law provides that this board and the agency administering the Workmen's Compensation Law shall cooperate in every way that will insure the best results in this work. This provision is very necessary, for practically all the states have workmen's compensation laws that are administered by a board or commission. These agencies have jurisdiction over the award and payment of compensation to those injured, and as the Industrial Rehabilitation Act does not provide for maintenance and support, the compensation commission can, in most states, arrange the payments of compensation so that the beneficiary will have ample funds for support while taking the training arranged by the state board for vocational education.

As defined in the act, the terms "persons disabled" shall be construed to mean any person who, by reason of a physical defect or infirmity, whether congenital or acquired by accident, injury or disease, is or may be expected to be totally or partially incapacitated for remunerative occupation; the term "rehabilitated" shall be construed to mean the rendering of a person disabled fit to engage in a remunerative occupation. These definitions are subject to varied interpretations, and by the broadest interpretations would show such a stupendous task that serious doubt would exist as to the proper handling of the problem; but the proposition must be handled as any undertaking in which the unworked material has accumulated to such an extent that the actual primary reclamation will make very little showing in proportion to the entire load. This should not tend to discourage those lending assistance; rather, it should encourage them to know that the greater the individual effort, the sooner the excessive load is lifted and the current cases expeditiously taken care of.

The first object with the state boards will probably be the recent cases in which persons can soon be returned to suitable employment. This, no doubt, will be all that the state boards can properly handle, owing to the many problems that they will experience in their early existence and operation; but in the course of a few months they will be seasoned to this new work, and can take care of more and more of the accumulated cases.

The physicians and the hospitals are of first thought to those administering this act, as the disabled persons come under their observation first, and without their cooperation and assistance the fullest benefit of the act cannot be obtained. A few of the ways in which they can assist are:

1. Secure a knowledge of the work done in the state and assist in the promotion of Industrial Rehabilitation. (Bulletin 57, Industrial Rehabilitation Series No. 1, giving general information, will be sent, on request, by the Federal Board for Vocational Education, Washington, D. C.)
2. Bring the provisions of the act to all fellow members of the profession, business and industrial concerns and all persons who might be eligible for rehabilitation and such others as might render assistance in carrying out its purposes.
3. Assist in obtaining such legislation as will be beneficial to the disabled.
4. Encourage those of their patients who will probably need rehabilitation by telling them of the possibilities—keep up their morale and courage.
5. Make prompt reports of all possible beneficiaries to the state board for vocational education, giving all material information.
6. Obligate themselves to watch and assist the patient through training and on his new work.

By doing this the medical profession and hospital authorities will warrant the trust placed in them, by the whole people, to do those things necessary and beneficial to the physically disabled.

Frank Harrison, M.D., Washington, D. C.
Chief Medical Adviser, Industrial Rehabilitation,
Federal Board for Vocational Education.

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

## SOURCE OF CHAULMOOGRA OIL, AND ITS FIRST EMPLOYMENT IN LEPROSY

*To the Editor:*—Please give some information as to (1) the origin, source and preparation of chaulmoogra oil; (2) when and where it was first employed in the treatment of leprosy, and (3) the derivation and pronunciation of the word. FRANCIS RAMALEY, PH.D., Boulder, Colo.

ANSWER.—1. Chaulmoogra oil is obtained by expression from the seeds of a handsome East Indian tree, *Taraktogenos kurzii* King, of the Family *Bixaceae*. It is not obtained from *Gynocardia odorata* R. Brown, as is frequently stated. Closely related oils are obtained from *Hydnocarpus wightiana* Blume, and *H. anthelmintica* Pierre. This class of oils differs from other known oils in being composed chiefly of the glycerol esters of two unsaturated fatty acids named chaulmoogric acid and hydnocarpic acid. At ordinary temperature, chaulmoogra oil is a soft solid, having a characteristic odor and disagreeable taste.

2. In India, chaulmoogra oil has been used both orally and externally in the treatment of leprosy since prehistoric times. However, it is so irritant to the intestinal tract that the oral dosage can seldom be pushed to the curative point; and its external use appears not to have been very effective. Tourtoules of Cairo, as far back as 1899, used the oil subcutaneously but his work attracted but little attention (*Ann. de dermat. et syph.*, ser. 3, **10**:721, 1899). Dr. V. G. Heiser, while in Manila, appears to have been the first to use chaulmoogra oil (*Am. J. Trop. Dis.* **2**:295, 1914) for the treatment of leprosy by intramuscular injections. Independently, Dr. Leonard Rogers in India had used orally with some success a mixture of the fatty acids from the oil, which he called collectively "gynocardic acid." On learning of Dr. Heiser's results, Rogers was led to use the sodium salts of these acids subcutaneously (*Lancet* **1**:288 [Feb. 5] 1916) and later on intravenously (*Brit. M. J.* **2**:550 [Oct. 21] 1916. Hollmann and Dean (*J. Cutan. Dis.* **27**:867, 1919) have employed the ethyl esters of the fatty acids from the oil.

3. "Chaulmoogra" is of East Indian origin. It is pronounced tchawl-moog'rah.

## VACCINES FOR COMMON COLDS

*To the Editor:*—Please advise me of the latest and best vaccine for common colds. L. J. SMITH, M.D., Wilson, N. C.
Health Officer, City and County Health Department.

ANSWER.—There is no scientific evidence that common colds can be prevented by the use of vaccines, despite the glowing recommendations of vaccine makers and the patter of the detail man. Colds characterized by catarrhal inflammation of the mucous membranes of the nose and throat are caused by various organisms, including a number of the commoner cocci and the bacillus of Pfeiffer. They are contagious, and spread rapidly from one person to another by the transfer of the bacteria concerned, so that small epidemics of colds are continually occurring in homes and communities. The organism concerned in one small epidemic may be different from that in another, and it is impossible to anticipate what organism is about to invade the household or community. The inoculation of mixed vaccines in the hope of providing against a number of possible invaders fails to produce immunity sufficient to prevent the infection of mucous membranes. Where completely controlled experiments have been made with large numbers of persons, colds have occurred among the inoculated in as large proportion as among the uninoculated. During the war, some evidence was obtained which indicated that preventive inoculation of troops with a vaccine containing large numbers of pneumococci reduced the incidence and mortality of pneumonia. In the case of superficial infection of the nasal and pharyngeal mucous membranes with diverse etiology, less can be expected, and practical results indicate that this skepticism based on theoretical considerations is well founded.

# Medical Education, Registration and Hospital Service

## COMING EXAMINATIONS

CONNECTICUT: New Haven, Nov. 16-17. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

DELAWARE: Dover, Dec. 14-16. Sec., Reg. Bd., Dr. P. S. Downs, Dover.

FLORIDA: Gainsville, Dec. 6-7. Sec. Reg. Board, Dr. W. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

ILLINOIS: Chicago, Dec. 6-7. Director, Mr. Francis W. Shepardson, Capitol Bldg., Springfield.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 1551 Canal St., New Orleans.

MARYLAND: Baltimore, Dec. 14. Sec., J. McP. Scott, 137 W. Washington St., Hagerstown.

OHIO: Columbus, Dec. 1-3. Sec., H. M. Platter, State House, Columbus.

TEXAS: Dallas, Nov. 16-18. Sec., Dr. Thomas J. Crowe, 617-20 Trust Bldg., Dallas.

VIRGINIA: Richmond, Dec. 14-17. Sec., J. W. Preston, 511 McBain Bldg., Roanoke.

## New Jersey June Examination

Dr. Alexander Macalister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 15-16, 1920. The examination covered 9 subjects and included 90 questions. Of the 36 candidates examined, 35 passed and 1 failed. Ninety-six candidates were licensed by reciprocity. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| **PASSED** | | |
| Howard University School of Medicine | (1918) 84.6, (1919) | 77.2 |
| University of Maryland School of Medicine and College of Physicians and Surgeons | (1916) 89.5, (1917) | 85.4 |
| College of Physicians and Surgeons, Baltimore | (1913) | 80.1 |
| Maryland Medical College, Baltimore | (1913) | 78.5 |
| Harvard University | (1918) | 90.3 |
| Tufts College Medical School | (1914) | 85 |
| University Medical College of Kansas City | (1913) | 90.2 |
| Columbia University | (1915) | 84.7 |
| New York Homeopathic Medical College and Flower Hospital | (1918) 90.8, (1919) | 87.6 |
| University of Pennsylvania School of Medicine | (1878) (1917) 88.2, 90.2, (1919) 82.7, 85.8, 86.5, 87.3, 88.1 | 80.7, |
| Jefferson Medical College of Philadelphia | (1914) 82.7, (1917) (1919) 84.7, 86.2, 86.2, 87.6, 88.8 | 88.7, |
| Hahnemann Medical College and Hospital of Philadelphia | (1916) 82.8, (1917) 88.5, (1919) | 79.1, 82.8, 89.3 |
| Medico-Chirurgical College of Philadelphia | (1916) | 82.8, 75.5 |
| Medical Academy of Petrograd, Russia | (1904) | 85.8 |
| **FAILED** | | |
| University of Heidelberg | (1893)* | |

* No grade given.

| College | Year Grad. | Reciprocity with |
|---|---|---|
| **LICENSED BY RECIPROCITY** | | |
| University of California | (1902, 2) | California |
| Yale University | (1907), (1909) | Maine |
| Georgetown University School of Medicine | (1903) (1907), (1916) | Penna. Dist. Colum. |
| Howard University School of Medicine | (1910) (1918) | W. Virginia N. Carolina |
| Hahnemann Med. College and Hospital of Chicago | (1905) | Missouri |
| Flint Medical College of New Orleans | (1901) | Oklahoma |
| Harvard University | (1916) Pennsylvania, (1916) | New York |
| Tufts College Medical School | (1919, 2) | Mass. |
| Atlantic Medical College, Baltimore | (1909) | W. Virginia |
| Baltimore Medical College | (1903) New York,* (1905) | Penna. |
| Johns Hopkins University | (1906), (1913) | New York |
| Maryland Medical College | (1912) | Maine |
| University of Maryland | (1905) New York, (1918) | Maryland |
| University of Michigan Medical School | (1906) | Utah |
| Kansas City Hahnemann Medical College | (1914) | Missouri |
| Albany Medical College | (1915), (1917) | New York |
| Columbia University (1903), (1904), (1906, 2), (1914), (1915), (1916), (1917), (1918), (1919, 3) New York | (1887) | Connecticut |
| Long Island College Hospital | (1913), (1917), (1918), (1919, 3) | New York |
| New York Homeopathic Medical College and Flower Hospital | (1911) Delaware; (1914), (1918) | New York |
| New York Med. College and Hospital for Women | (1916) | New York |
| University of Buffalo Department of Medicine | (1911) | New York |
| Eclectic Medical College of New York City (1909) New York | (1907) | New York |
| University and Bellevue Hospital Medical College | (1899), (1918), (1919, 9) | New York |
| Cornell University | (1907), (1913) | New York |
| Fordham University School of Medicine | (1919, 3) | New York |
| Leonard Medical College | (1897) | Maryland |
| North Carolina Medical College | (1916) | N. Carolina |
| Medical College of Ohio | (1897) | New York |
| University of Pennsylvania School of Medicine | (1912) | Maryland |
| Jefferson Medical College (1906), (1907), (1911), (1915), (1916), (1918, 2) Pennsylvania. | (1903) | New York |
| Women's Medical College of Pennsylvana (1905) Pennsylvania. | (1889) | Mass. |
| Hahnemann Medical College and Hospital of Philadelphia | (1900) Florida, (1919) | Mass. |

| | | |
|---|---|---|
| Medico-Chirurgical College | (1904), (1913) | Penna. |
| Temple University Department of Medicine | (1916) | Penna. |
| University of Texas Department of Medicine | (1917) | Texas |
| Vanderbilt University Medical Department (1917) Kentucky. | (1912) | Tennessee |
| Memphis Hospital Medical College | (1904) | Tennessee |
| University of Vermont College of Medicine (1919) Vermont. | (1888) | Vermont* |
| Medical College of Virginia | (1916) | Virginia |
| Marquette University School of Medicine | (1913) | Wisconsin |

* License not verified.

### Texas June Examination

Dr. Thomas J. Crowe, secretary, Texas State Board of Medical Examiners, reports the written examination held at Galveston, June 22-24, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. One hundred and one candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| University of Louisville Medical Department | | (1917) | 78.1 |
| Tulane University | (1918) 91.2, (1919) 77.2, (1920) 85.2. | | 85.4, 87 |
| Kansas City College of Medicine and Surgery | | (1919) | 75*, 80.7 |
| Columbia University College of Phys. and Surg. | | (1920) | 88.3, 90.3, 91.6 |
| University of Pennsylvania | | (1919) | 86 |
| Vanderbilt University Medical Department | | (1920) | 84.2, 88.1 |
| Baylor University College of Medicine (1920) 75.8, 77.5, 81, 81.3, 81.6, 82.3, 82.8. 83.4, 83.7, 83.7, 83.9, 85.2, 86.1, 86.4, 87.4, 87.6, 88.3, 89.4, 89.6, 90.2, 90.8, 92.8.‡ | | (1919) | 80.7, |
| University of Texas Department of Medicine (1920) 80.7, 81.2, 81.8 81.9, 81.9, 82, 82.7, 82.9, 83, 83.3, 83.4, 83.9, 84.8, 85, 85.1, 85.1, 85.2, 85.2, 85.5, 85.5, 85.5, 85.7, 86, 86, 86.1, 86.1, 86.2, 86.3, 86.5, 86.5, 86.5, 87, 87.1, 87.3, 87.3, 87.3, 87.5, 87.7, 87.8, 88.1, 88.1, 88.2, 88.2, 88.3, 88.8, 89, 89.9, 90.1, 90.1, 90.3, 90.4, 90.4, 90.4, 90.7, 91, 91.1, 91.7, 92.3, 92.4, 92.5, 93.7. | | (1919) | 87.7, |
| University of Virginia | | (1914) | 88.1 |

* One per cent. allowed for years of practice.
‡No grade given.

### Colorado July Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination, held at Denver, July 6, 1920. The examination covered 8 subjects, and included 80 questions. An average of 75 per cent. was required to pass. Of the 75 candidates who took the physician's and surgeon's examination, 35, including 8 osteopaths, passed, and 16, including 5 osteopaths, 1 chiropractic and 1 undergraduate, failed. Twenty-three candidates were licensed by reciprocity. One candidate was licensed on Army credentials. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| University of Colorado School of Medicine | | (1920) | 80.3, |
| 80.6, 82.3, 82.7, 83, 83.4, 83.8, 84.9, 86.3, 87.3, 87.7, 87.9, 87.9, 88.1, 88.8, 90.4, 91.4, 93. | | | |
| Bennett Medical College | | (1912) | 75 |
| Eclectic Medical University of Kansas City | | (1917) | 84.9* |
| St. Louis College of Physicians and Surgeons (1919) 81.1, (1920) 86.8. | | (1918) | 85.6, |
| Kansas City University of Physicians and Surgeons 83.6. (1920) 87.8. | | (1919) | 78.6, |
| Univ. of West Tennessee Coll. of Med. and Surg | | (1915) | 75.3 |
| | FAILED | | |
| Bennett Medical College | | (1913) | 58.2 |
| Kansas City University of Physicians and Surgeons | | (1920) | 66.6 |
| St. Louis College of Physicians and Surgeons (1919) 61, (1920) 57, 70.8, 71, 74. | | (1918) | 37.4, |
| Univ. of West Tennessee Coll. of Med. and Surg | | (1918) | 41.5 |
| Undergraduate | | | 53.1 |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Cooper Medical College | | (1905) | California |
| Georgetown University School of Medicine | | (1906) | Dist. Colum. |
| Chicago College of Medicine and Surgery | | (1917) | Wyoming |
| College of Physicians and Surgeons, Chicago | | (1907) | Illinois |
| Hahnemann Med. College and Hospital of Chicago | | (1889) | Utah |
| Rush Medical College | | (1878), (1902) | Illinois |
| Kansas Medical College | | (1913) | Kansas |
| University of Louisville | (1904) | Kentucky, (1909) | Texas |
| Tulane University of Louisiana | | (1911) | Mississippi |
| Boston University | | (1896) | Mass. |
| Baltimore Medical College | | (1910) | Mass. |
| Barnes Medical College | | (1901) | Missouri |
| Washington University Medical School | | (1917) | Missouri |
| Long Island College Hospital | | (1895) | New York |
| Coll. of Phys. and Surg. in the City of New York | | (1890) | Alabama |
| University and Bellevue Hospital Medical College | | (1912) | New York |
| University of Nebraska | | (1902), (1920, 2) | Nebraska |
| North Carolina Medical College | | (1912) | N. Carolina |
| Jefferson Medical College of Philadelphia | | (1912) | Kansas |

| College | ENDORSEMENT OF CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| Tufts College Medical School | | (1909) | U. S. Army |

* Graduation not verified.

### North Carolina June Examination

Dr. H. A. Royster, secretary, North Carolina State Board of Medical Examiners, reports the oral, written and practical examination held at Raleigh, June 21-25, 1920. The examination covered 15 subjects, and included 100 questions. An average of 80 per cent. was required to pass. Of the 72 candidates examined, 70 passed and 2 failed. Forty-three candidates were licensed by reciprocity. One candidate was licensed by endorsement of certificate from the National Board of Medical Examiners, and two by government credentials. The following colleges were represented

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| George Washington University | | (1917) | 85.7 |
| Atlanta Medical College | | (1916) | 80 |
| Emory University | | (1920) | 86.2 |
| Loyola University | (1918) 81.1, | (1919) | 83.7 |
| University of Louisville | | (1919) | 83.1 |
| Tulane University | | (1917) | 80.8 |
| Harvard University | | (1919) | 86.2 |
| Johns Hopkins University | | (1920) | 84.7, 88.7 |
| University of Maryland | (1914) 84.5, | (1917) 85.5, (1918) (1919) 83.7, (1920) 84.5, 85.8, 88, 87.5 | 84.4, |
| North Carolina Medical College | | (1917) 84, (1918) | 81.7 |
| Columbia University | | (1917) | 85.1 |
| University and Bellevue Hospital Medical College | | (1917) | 80.7 |
| University of Cincinnati | | (1918) | 80.7 |
| Jefferson Medical College | (1917) 83.7, 87.7, | (1918) | 82.4, |
| 83.1, 85.8, (1920) 80, 81, 81.5, 82, 82.4, 82.5, 82.5, 84.2, 84.8, 85.1, 85.1, 86.4, 86.5, 88, 88.1, 88.7, 90.1, 90.1, 91.2, 91.5, 93.7 | | | |
| Women's Medical College of Pennsylvania | | (1920) | 90 |
| University of Pennsylvania | | (1920) | 85.1, |
| 86.2, 86.5. 86.8. 88, 89.4, 89.7, 90.4 | | | |
| Meharry Medical College | | (1918) | 84.7 |
| University of West Tennessee | | (1910) | 80 |
| Vanderbilt University | | (1920) | 86 |
| Medical College of Virginia | (1914) 82.5, | (1916) 80.1, (1918) 88.5, (1919) 80, (1920) 85, 88.4 | 92.2, |
| University of Virginia | | (1917) 84.7, (1918) | 84.5 |
| | FAILED | | |
| Meharry Medical College | | (1911)* | (1918)* |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| George Washington University | | (1915) | Dist. Colum. |
| Atlanta College of Physicians and Surgeons | | (1911) | Georgia |
| Atlanta School of Medicine | | (1909), (1912) | Georgia |
| University of Georgia Medical Department | | (1915) | Georgia |
| University of Louisville | | (1913), (1917) | Kentucky |
| Harvard University | (1912) S. Carolina, | (1917) | Mass. |
| Tufts College Medical School | | (1906), (1907) | Mass. |
| Baltimore Medical College | | (1907) | Maryland |
| Johns Hopkins University | | (1914) | S. Carolina |
| University of Maryland | | (1913) | Maryland |
| University of Michigan | | (1918, 2) | Michigan |
| Barnes Medical College | | (1902) | Missouri |
| Columbia University | | (1915) | New York |
| Long Island College Hospital | (1904), | (1911) | New York |
| New York University Medical College | | (1897) | Missouri |
| Miami Medical College | | (1903) | Ohio |
| Ohio State University College of Medicine | | (1916) | Ohio |
| Starling Medical College | | (1897) | Ohio |
| Hahnemann Med. Coll. and Hosp. of Philadelphia | | (1906) | Penna. |
| Medical College of the State of South Carolina | | (1915) | S. Carolina |
| Memphis Hospital Medical College | | (1899) | Tennessee |
| University of the South | (1907), | (1909) | Tennessee |
| University of Tennessee | | (1917) | Tennessee |
| Vanderbilt University | | (1917) | Tennessee |
| Baylor University | | (1914) | Texas |
| Medical College of Virginia | (1914, 2), (1916, 2), | (1917,2) (1918) | Virginia |
| University of Toronto | | (1891) | Canada |

* No grade given.

| College | ENDORSEMENT OF CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| University of Pennsylvania | | (1919) | Nat'l B'd Med. Examiners |

| College | ENDORSEMENT BY GOVERNMENT CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| Washington University | | (1918) | U. S. Army |
| North Carolina Medical College | | (1917) | U. S. Navy |

### Mississippi Reciprocity Report

Dr. W. S. Leathers, secretary, Mississippi State Board of Health, reports that 16 candidates, including one osteopath, were licensed by reciprocity at the meeting held at Jackson, June 22, 1920. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|---|---|---|
| Univ. of Alabama School of Med. | (1911) Alabama, (1907) | Alabama |
| Univ. of Louisville Med. Dept. | (1894) Kentucky, (1912) | Kentucky |
| Hospital College of Medicine, Louisville | (1902) | Kentucky |
| Tulane University of Louisiana School of Medicine (1918) Louisiana, (1919) Louisiana, (1919) Louisiana. | (1915) | Louisiana |
| Barnes Medical College | (1904) | Illinois |
| Ohio State University College of Medicine | (1916) | Ohio |
| Jefferson Medical College of Philadelphia | (1900) | Oklahoma |
| Medico-Chirurgical College of Philadelphia | (1915) | Illinois |
| Vanderbilt University Medical Department (1916) Tennessee. | (1904) | Arkansas |

# Book Notices

PUBLIC HEALTH AND INSURANCE: AMERICAN ADDRESSES. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P., Lecturer on Public Health Administration at the School of Hygiene and Public Health, Johns Hopkins University. Cloth. Price, $2.50. Pp. 270. Baltimore: The Johns Hopkins Press, 1920.

"After more than three decades of work in preventive medicine and public health, the opportunity has arisen, in connection with a year's visit to America, to take a panoramic view of public health in England, of the progress which has been secured, of the factors which have impeded progress, and of the pressing desiderata for more efficient future action." This, from the preface, indirectly sums up the scope of the book. It is made up of addresses delivered during the author's year in this country as lecturer on public health administration at the new School of Hygiene and Public Health of Johns Hopkins University. These addresses, delivered in various parts of the United States, form a historical review of practically the whole subject of public health and preventive medicine. The subjects are: "Public Health Progress in England during the Last Fifty Years"; "Historical Development of Public Health Policy in England"; "The Increasing Socialization of Medicine"; "The Medical Aspects of Insurance Against Sickness"; "Some Problems of Preventive Medicine of the Immediate Future"; "The Inter-Relation of Various Social Efforts"; "The Obstacles to and Ideals of Health Progress"; "Some Aspects of Poverty"; "The Causation of Tuberculosis and the Measures for Its Control in England," and "Child Welfare Work in England." The author's direct contact with public health work in England for a third of a century qualifies him to speak as an authority, and his intimate knowledge of conditions in this country, gained from personal observations, enables him to present his subjects to Americans as would not otherwise be the case. A book made up of miscellaneous addresses on related subjects usually contains much repetition of the same thoughts or facts, if not of verbiage. This criticism does not apply here; on the contrary, if it were not stated in the footnotes to the chapters that the addresses were delivered before such-and-such an institution or society, the reader might suppose that the material had been prepared for publication in the form in which it appears: there is a logical sequence of subjects. The book as a whole presents an account of the developments of health legislation in England in all its phases, of the mistakes that have been made, of the obstacles that have been and are yet to be overcome; in connection with his account, the author incidentally criticizes or praises what has been and is being accomplished in this country. While England has gone ahead in some respects, the United States has taken the lead in others. The chapter on socialization of medicine and that on health insurance contain facts and opinions that will be of special interest to many in this country at the present time. Evidently Sir Arthur, while favoring a certain form of health insurance, is of the opinion that the way the matter is working out in England is satisfactory neither to the medical profession nor to the insured. The book is full of facts, of information and of suggestions that make it of value to all in this country who are interested in public health and preventive medicine.

THE LETHAL WAR GASES: PHYSIOLOGY AND EXPERIMENTAL TREATMENT. An Investigation by the Section on Intermediary Metabolism of the Medical Division of the Chemical Warfare Service at Yale University under the Direction of Frank P. Underhill, Professor of Experimental Medicine, School of Medicine, Yale University. Published with the Permission of the Director of the Chemical Warfare Service. Cloth. Price, $15. Pp. 309. New Haven: Yale University Press, 1920.

This is a companion volume to the report of Winternitz from the same laboratory on the "Pathology of War Gas Poisoning," reviewed in these columns, June 19, 1920. Dr. Underhill takes up the study of the chief asphyxiating gases (chlorin, phosgen and chlorpicrin) used in the war, recounting the studies on their toxicology, and the treatment of their effects, that were carried out under the section of the medical division of the Chemical Warfare Service that was under his direction. These are given in the detail proper for a final report of so important and extensive a piece of investigation. While it is to be hoped that much of this work will become merely of historical interest, yet intoxication with irritating gases does occur in the pursuits of peace, and the lessons learned in war may be of value here as well as in other fields of medicine. The experimental studies with the asphyxiating war gases revealed that, among many observed effects, one of the most important is a well defined curve of changes in blood concentration, there being an initial period of from five to eight hours of decrease in concentration, followed by a stage of marked increase during which most of the fatalities occur. With recovery, the curve returns to slightly less than the normal concentration, which is eventually regained. Fatalities are attributed to failing circulation from concentration of the blood, rather than to asphyxia from the pulmonary edema, which had been the prevailing explanation of the fatal action of war gases. A system of treatment was developed on the bases of these observations, with the object of maintaining the blood concentration as near the normal figure as possible, by bleeding during the early stage when the blood is diluted, and by injection of saline solution during the stage of concentration, together with judicious use of oxygen when the concentration of the blood has been made as nearly normal as feasible. Although encouraging results were obtained in gassed animals, this method was not applied in man, as it was developed just before the armistice.

HUMAN PARASITOLOGY. With Notes on Bacteriology, Mycology, Laboratory Diagnosis, Hematology and Serology. By Damaso Rivas, B.S.Biol., M.S., M.D. Cloth. Price, $8. Pp. 715, with illustrations. Philadelphia: W. B. Saunders Company, 1920.

This book, which is one of the most extensive of the numerous recent works on the topic, opens with a general historical and biologic discussion, devotes separate parts to protozoan, metazoan and vegetable parasites, and closes with an appendix on gross and microscopic methods and technic, including hematology and serology. This feature of the work is new and will be welcomed by many; it might well have been developed more fully in its special relations to parasites. The work, as a whole, is fairly complete and up to date. Some features, however, will hardly commend themselves to most students of the subject. Thus, the grouping of worms according to organs inhabited may be defensible; but similar treatment of parasitic amebas leads to evident absurdities and its likely to mislead those not thoroughly familiar with these parasites. The author states that it is his plan to follow the rules of the International Commission on Zoological Nomenclature, but the text departs widely and unnecessarily therefrom. It shows also constant evidences of hasty and careless proofreading, and the resulting errors are sure to trip up students in other fields who go to it for authoritative information. It is unfortunate that so much material has been taken over bodily from other sources without a single word of acknowledgment. Many of the best illustrations are apparently reproduced from well-known authors, whose names are not attached to the legends.

THE CATARRHAL SUPPURATIVE DISEASES OF THE ACCESSORY SINUSES OF THE NOSE. By Ross Hall Skillern, M.D., Professor of Laryngology, Medico-Chirurgical College, Post-Graduate School, University of Pennsylvania. Third edition. Cloth. Price, $6.00. Pp. 418, with 300 illustrations. Philadelphia: J. B. Lippincott Company, 1920.

Skillern's work needs no introduction to the American rhinologist, and the third edition will be welcomed by this branch of the profession. This well known work, encyclopedic in its scope, has been enlarged and brought up to date by the incorporation in its text of new treatments and recent surgical procedures that have proved of merit. The subject matter has been divided into two main divisions, the first part, occupying fully one third of the text, taking up the general considerations involved in the study of the accessory sinuses, and the second division a study of the individual sinuses in detail. The work is an ideal textbook for graduate study, and as a reference volume is doubtless the most complete in the English language, the bibliography containing nearly 600 titles of original sources.

# Miscellany

## THE PHYSICIAN AS A FACTOR IN A STATE-WIDE COOPERATIVE PROGRAM FOR PROPHYLAXIS OF SOCIOLOGICAL DISORDERS

CHESTER L. CARLISLE, M.D.

United States Public Health Service Director, Oregon State Survey of Mental Defect, Delinquency and Dependency

EUGENE, ORE.

The community rôle of the physician as the diagnostician of medicopsychologic-sociological disorders is a very real and pressing actuality. Public health, social welfare, mental hygiene, sanitation and the whole field of health, normality of organ function and adequate conduct versus disease, inefficiency and failure are now recognized as definitely interrelated fields. The lesson of the draft findings is being carried into civil life.

In 1919, the Oregon legislature, realizing that there is "a large number of defective, delinquent and dependent people"; that "members of these groups are not only a source of weakness but a positive liability to the state and nation," that "these classes are a constantly increasing drain on the finances, health, morals and every other resource of the state . . . and contribute to social and political unrest . . . and . . . it is the duty of the state to promote the interests of the state," granted the University of Oregon authority to make such a survey, to report the result of its study with recommended legislation, and to conduct this study according to its own plan, the state not being asked for any appropriation for this purpose. The United States Public Health Service, long actively interested in all problems relating to physical, mental and child hygiene and public welfare generally, on the invitation of the state and university, endorsed by the state board of health, was glad to cooperate with the citizens of Oregon in their attempt to ascertain actual community facts of mental defect, delinquency and dependency. The Oregon State Survey of Mental Defect, Delinquency and Dependency is the response of a whole state awakened to the practical lessons of social hygiene.

The United States Public Health Service established headquarters for the survey with the extension division of the university. It acts as the directing and coordinating agent in collecting and collating all facts obtained. With no state appropriation for a paid staff, it was decided to utilize this apparent liability as an asset for social good. Hence, in order to carry the practical meaning of mental hygiene into the conscious awareness of every citizen having to do with the education and training of the children of the state, as well as to every citizen having to do with state, county, municipal and community welfare for adults, a state-wide plan of volunteer citizen cooperation was developed and is now in full operation. Every physician, educator, school and public health nurse, clergyman, lawyer and every officer of official and private community welfare groups in the state, including the Red Cross, was requested to act as a special volunteer assistant to the survey. The medical school of the university in Portland has taken an active part in bringing the object and scope of this project to the specific attention of its students, the university realizing that to the modern student in medicine must be given a much wider vision of his future professional activities than was formerly considered to be necessary. The entire newspaper-reading public was reached through the kindly assistance of the two hundred-odd newspapers of the state. The active interest of all citizens has been stimulated and enlisted in order that future legislation, based on the report of this survey transmitted through the Surgeon-General of the United States Public Health Service to the Oregon legislature, might be able to initiate a sufficiently broad and comprehensive plan of diagnosis, care, treatment and training of abnormal types, both in institutions and in community work, through the awakening of the whole state to the possibilities for social betterment and medico-sociological prophylaxis.

This state-wide census survey is in effect a referendum concerning mental defect, hampering physical disorder, delinquency and dependency—an important consideration in Oregon, where all important legislation is based on an actual referendum. It is apparent that before the people of a state can be asked to vote legislation having in view the improvement of statutory provisions in the field of mental and physical hygiene, the meaning and lessons of social hygiene must be already a part of their everyday point of view. All the assistants of the survey received a certificate under the seal of the state, over the signature of the director of the survey for the United States Public Health Service, giving them their authority to act. Thus was started an actual, state-wide citizen movement in mental hygiene based on "a sense of high citizenship and patriotism." The facts collected are recorded on special cards arranged by the director to care for any possible combination of medicopsychologic-sociological symptoms that any one person might show, characterizing him, for instance, as a blind, tuberculous dependent; a mentally defective delinquent; a crippled child who is bright, or a child over age for school grade on the normal expectation scale and hence a case of retardation. Each card has a space wherein the basic cause of the medico-sociological condition may be set down if ascertained.

In all of this it was planned to have every qualified physician in Oregon take the place to which he was entitled by reason of his special training and unique strategic situation in every local community problem of public health or social welfare. The medicopsychologic-sociological field of today is contemporaneous with the development of the modern aeroplane: both are phenix offspring of outworn social dogmas in flames. Mental and physical disease, defect or disorder not only presents symptoms of interest to the surgeon, internist, specialist or laboratory man, but takes every family physician of city, town and country into the company of those who would assist society in protecting itself from the inefficient, defective, delinquent, dependent conduct of the socially inapt.

The physician of today evaluates findings not only in terms of pathologic "lesions" but further in terms of foci for social infection. His scientific training fits him above all other professional groups to grasp the needs of the situation from both the individualistic physical side and from the community group point of view. Case histories, to be of scientific value, must include all the facts that have contributed to the constitutional make-up of the individual: the ensemble of all those factors in genetics, prenatal, maternal and environmental postnatal conditions and acquired disorders up to the very moment of onset of the symptoms (conduct). The needs of the patient and society alike demand investigation in all fields. With realization of the increased demands made on our profession, we will develop insight in the enormous field in prophylaxis.

In reviewing the health of schoolchildren, the investigation of causal factors and relief measures for overage-grade retardation includes something even more than outdoor classes, tooth brushes and vitamins. Surveys conducted by the United States Public Health Service into the cause of pupil retardation show that of 3,793 rural schoolchildren examined in New Castle County, Del., by Surg. E. H. Mullan, "five-tenths of one per cent. are definitely feebleminded and in need of institutional treatment, and an additional 1.3 per cent. of the total number were so retarded mentally as to be

considered probable mental defectives."[1] Surveys made by Asst. Surg.-Gen. Taliaferro Clark and P. A. Surg. W. L. Treadway show that in Porter County, Ind., "of the 1,087 girls and 1,098 boys examined in the rural schools, 0.6 per cent. of the former and 1.2 per cent. of the latter were so exceptionally retarded that their mental development at no time will be greater than that of a child."[1] Illustrating the necessity of making examinations and case histories inclusive of all fields of inquiry are the further findings of the same investigators, who demonstrated in this retarded group in Porter County that "28 per cent. of the exceptionally retarded girls were undersized; 42.8 per cent. had defective eyesight; 14.2 per cent. had defective hearing, and 2.9 per cent. had enlarged tonsils."[1] This demonstrates the interlocking of actual mental and physical "symptoms" and "conduct" which need treatment and care from both the physician and the educator if any real advance is to be made. Discriminating i. e., feeblemindedness and epilepsy; feeblemindedness, blindness and deafness; criminalistic tendencies with dependency, blindness and deafness, and blindness and deafness with dependency. The expenditure for maintenance and operation in 1915 was $81,048,990.93.[2] The most significant fact concerning this large group of social patients is that they represent only institution admissions and do not indicate the vast residue of similar persons to be found in each community who have as yet never appeared on public records, and never may because of lack of insight as to their needs on the part of the public generally. Such borderline cases are continually actual or potential medicosociological problems, and are always essentially social liabilities.

In addition to such data collected by the special voluntary assistants of the Oregon state survey, trained field investigators are making intensive studies of special groups: the mentally defective as a problem essentially of quantitative

FOR MALES

## State of Oregon—Survey of Mental Defect, Delinquency and Dependency

*THE UNIVERSITY OF OREGON, directed by the U. S. PUBLIC HEALTH SERVICE, requests your cooperation in filling out this card for any case of mental defect, dependency or delinquency which comes under your observation. Please return promptly to Extension Division, University of Oregon, Eugene, Oregon*

NAME: Surname — Given name — Birthplace (Specify county if in Oregon) — Age — Single / Married / Widowed / Divorced / Separated / Common Law — Occupation (or that of father if under 14) — Alias, if any — Reaction to sex matters

Legitimate — Illegitimate — Illegitimate children

RESIDENCE: County — Address, street or R.F.D. — Village, town or city — How long in U.S. — How long in Oregon — Citizen of what state or country — Religion — Race

PHYSICAL STATUS (Specify diseases) — Specify physical handicaps, as: { Blind—one eye both; Deaf—one ear both; Crippled or deformed } — Specify Venereal diseases, if any — Wasserman Reactions taken

EMOTIONAL FIELD (Temperament) — Stable — Unstable (Tantrums) — Periodic upsets (Variation of moods) — Over-valuation of ideas Enthusiasms — Shut-in or seclusive type — Frank, open type — Other types

PERSONAL HISTORY (Check known facts)
Truant — Liar
Cruelty—Animals
Crimes—Property
Crimes—Persons
Sex pervert
Sex offender
Pyromania
Homicidal
Ungovernable child
Family deserter
Illicit consorts

SCHOOL HISTORY (Check known facts)
Attended school (check where)
City — Village (under 2,000)
Rural
PRESENT GRADE
How many school grades retarded for age?
Grade repeater 1, 2, 3, 4, times
No progress in grades
Education:
None — reads — reads and writes
Grammar school — High school
College

SOCIAL RECORD (Check known facts)
Steady worker — What — Weekly wage — Self-supporting
Intermittent worker — What — Weekly income — Self-supporting
Partial dependent — Public funds — Private funds — Cause
Complete dependent — Public funds — Private funds — Cause
Condition: Affluent — Comfortable — Poor — Squalid — Tramp
No anti-social conduct — Delinquent, never apprehended
Apprehended but not convicted — Sentenced
Sojourn in any institution—give dates and details

Does this person show symptoms of MENTAL DEFECT (feeble-minded) — Check—*Idiot* — *Imbecile* — *Moron* — *Borderline Intelligence Quotient* — *Subnormal Mental Age*
If Psychometric tests were made specify findings
Is he *Alcoholic?* (regular) (irregular) — *Epileptic* — *Insane* — (Diagnosis) — *Drug addict* (Specify)

HEREDITY
Father's name — Birthplace — Mother's maiden name — Birthplace
Father a citizen of what country — Has he first naturalization papers? — Has he completed naturalization papers?
Father's mentality — Temperament — Successful — Anti-social record
Mother's mentality — Temperament — Successful — Anti-social record
The family of this subject is composed of — brothers and — sisters, of whom — males and — females are living
Specify all mental and nervous disorders ANY relative of the family ever developed

CAUSES: State what you believe to be the cause of the subject's trouble

SUGGESTIONS as to needs:

DATE OF THIS RECORD — REMARKS: (Write additional information on the back of this card)

Card for males arranged to record any combination of medicopsychologic-sociological data that may be shown. For females a card of blue stock is used, with minor changes, such as "occupation or that of husband or father," and "how many legitimate children?" in place of "occupation (or that of father if under 14)" and "alias, if any."

judgment based on accurate knowledge and adequate examination of the subject's whole output, "symptoms" and conduct must be the decisive factor in making a final diagnosis and social readjustment for either children or adults who as the "sick," the incorrigible, the delinquent, the inefficient dependent, or the whole combination as one patient, come before the physician and the community.

The report of the United States Bureau of the Census, 1919, shows the same thing from a nation-wide standpoint. This records that in institutions alone there were on Jan. 1, 1916, 394,991 individuals who were receiving care and treatment in 576 various institutions scattered throughout the United States suffering from these medicopsychologic-sociological maladies: feeblemindedness, insanity, criminalistic tendencies, epilepsy, inebriety, tuberculosis, leprosy, blindness, deafness, deformities, dependency and combinations of the foregoing, intelligence capacity loss; the delinquent as a problem in intelligence capacity, affective deviation and environmental influences; the dependent as a problem relating to public funds with special reference to causes, including constitutional make-up and environmental stress. Similarly, the problem of the over-age-grade retarded pupil in school is being investigated in selected districts. These special studies will assist in erecting a standard to which the figures obtained throughout the state may be compared. A comparative study of published findings in similar types surveyed in other states will be added. This is necessary to give background to local conditions in Oregon, where problems of terrain relating to wide expanses of thinly settled country are further complicated by difficulties inherent in floating and itinerant community groups incident to lumbering, hop rais-

1. Pub. Health Bull. 77.

2. Statistical Directory of State Institutions, etc., Bureau of the Census, 1919.

ing, cattle ranching and the like. The Oregon State Survey, in attempting to ascertain the medicopsychologic-sociological facts in an area covering 96,699 square miles and containing nearly a million people, represents the problem of the physician of today in the work of the world. He is the one really responsible diagnostician and therapist in the related fields of mental, physical and social hygiene.

## Medicolegal

### No Action for Anguish for Death on Operating Table

*(Croom et ux. v. Murphy (N. C.), 102 S. E. R. 706)*

The Supreme Court of North Carolina had here an action for damages that was brought against a physician by the parents of a child named Mildred Croom, who, as they alleged, "died suddenly on an operating table." Their allegations were that the death of the child was caused by the negligence of the defendant or his agents, in that he failed to make a proper examination of the patient before the ether was administered to her; in permitting a nurse, who was incompetent for that purpose, to administer the ether; in the negligent acts of the nurse, as his agent, in administering too much ether, or in administering it in a careless and unskilful manner; and in the failure of the defendant and his agents to observe the physical condition of the patient as indicated by her pulse and other symptoms while the ether was being administered and she was under its influence, one or the other or all of which acts proximately caused her death, by reason of which the plaintiffs had suffered and did still suffer great mental anguish, and had been damaged in the sum of $10,000. The defendant demurred to the complaint, principally on the ground that, the death of Mildred Croom being sudden and instantaneous, the plaintiffs had no right of action, the latter belonging to an administrator. The demurrer was sustained, and the complaint was dismissed. In affirming the judgment of the lower court, the supreme court says that the cause of action was for the wrongful death of Mildred Croom; the allegation of mental anguish was important only on the issue of damages, and the authorities in this country and in England are practically uniform that the action cannot be maintained.

### Liability for What Is Done to Disease—Duty to Avoid Injuring the Weak

*(Hanson v. Dickinson (Iowa), 176 N. W. R. 823)*

The Supreme Court of Iowa affirms an award by the industrial commissioner of compensation for total disability during forty-four weeks in this case wherein the claimant was struck by a hammer on the inside of his left leg just below the kneecap, the blow causing a red spot and black and blue discoloration about it, while a roentgenogram taken about a month later revealed no fracture, but a disease of the bone and pus, a condition which a physician attributed to gonorrheal infection. The law, the court says, is well settled that one predisposed to disease which is aggravated or accelerated by a negligent injury is entitled to recover damages necessarily resulting from such aggravation or acceleration. In other words, the previous condition of the person injured cannot be invoked by the defendant for the purpose of escaping the consequences of his own negligence. The duty of exercising care to avoid injury to the weak and infirm is precisely the same as toward the strong and healthy, and when that duty is violated the measure of damages is the injury inflicted, even though the injury might have been aggravated or might not have happened at all but for the peculiar condition of the person injured. The workmen's compensation act dispenses with the necessity of any showing of negligence, contributory negligence and the like, and adopts as the standard or condition that the injury must have been personal and have arisen out of and in the course of the injured person's employment. The act does not purport to deal with the consequences save as these may fix the compensation to be paid by the employer, and there is no tenable reason for modifying the rule as to liability which obtained at the common law. It was urged in this case, however, that, under the definition of "personal injuries" in the Iowa statute, that "they shall not include a disease, except as it shall result from the injury," a pre-existing disease ought not to be considered, even though lighted up or accelerated by the injury. In the English act, as well as in the acts of most of the states, the remedy provided is for "personal injury by accident," and that is held to exclude diseases other than those in consequence of the injury. Manifestly the term "personal injuries" is of much broader significance than "personal injury by accident." It comprehends a great number of injuries. The manifest design of the general assembly in providing that the term "personal injuries" should not include a disease was to eliminate occupational diseases; that is, those which are incidental to or result from the occupation in which the employee is engaged. In a sense these may be said to "arise out of and in the course of the employment," but usually they are covered by increased compensation of the employee. Nor could it be said that the injury claimed for in this case included the disease with which the claimant was afflicted. What was claimed for was injury as inflicted by the accidental slipping of the hammer and the natural consequences flowing therefrom and traceable thereto, and this might have been found by the industrial commissioner to be the lighting up or accelerating of the dormant disease. The claim was not based on the disease, but on what the bruise did to the disease.

### Validity of Law Empowering Board to Suspend Licenses—Sufficiency of Complaint and Evidence

*(Suckow v. Board of Medical Examiners (Calif.), 187 Pac. R. 965)*

The Supreme Court of California says that this was a proceeding begun in the superior court to review the action of the defendant board in suspending the license of the plaintiff, to practice medicine, for the period of one year. The statute under which the board had acted specifies, among other things which constitute unprofessional conduct, "the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion." The complaint before the board charged that the plaintiff in this review case did in the county of Los Angeles, state of California, "procure, aid and abet, and attempt, agree and offer to procure, a criminal abortion upon a pregnant woman," naming a certain person. The plaintiff in this proceeding for a review argued that the action of the board was in excess of its jurisdiction; that the provision of the statute empowering the board to suspend or revoke a license to practice medicine, on finding the practitioner guilty of "unprofessional conduct," was unconstitutional. It was contended particularly that the statute was unconstitutional as an attempt by the legislaure to vest part of the judicial power of the state in a tribunal other than any that was authorized by the provision of the state constitution that all of the judicial power of the state is vested in the courts named and in such inferior courts as the legislature may establish. But the supreme court holds that the statute is constitutional, and affirms a judgment in favor of the board.

It must be conceded, the court says, that the power given to the board to revoke or suspend the license of a person duly admitted to practice medicine, on finding him guilty of charges of unprofessional conduct, as defined in Section 14 of the act for the regulation of the practice of medicine as amended in 1915, is judicial in its nature. The right to practice medicine is, like the right to practice any other profession, a valuable property right, in which, under the constitution and laws of the state, one is entitled to be protected and secured. The deprivation of such right without due process of law would be a violation of constitutional provisions. The meaning of this is that no one can be deprived thereof without notice and an opportunity for a hearing before some tribunal authorized to determine the question. That a board or tribunal so authorized exercises at least quasijudicial power in so doing is well established by the decisions of California. The determination that the plaintiff was guilty and that his

right to practice should be suspended comes clearly within the scope of the definitions of what the judicial function is. Nevertheless, it is now well established in California that tribunals such as the board of medical examiners or other boards empowered to revoke licenses which they have previously granted, for cause defined by the law, are not courts in the strict sense; they are not exercising "the judicial power of the state" as that phrase is used in the constitution conferring judicial power on courts, and that statutes creating such boards and conferring on them such powers are constitutional. It is also settled that, where a board has exercised quasijudicial power of the nature of that here in question, its decisions are subject to revision by way of certiorari.

Furthermore, the court does not agree with the contention that the complaint against the plaintiff, filed with the board, did not sufficiently state any cause for the revocation or suspension of his license, his contention being that the board could not have jurisdiction unless the charge was as specific and complete as would be necessary to an indictment under the provisions of the penal code defining the crime of abortion. Nor could it be said that there was no legal evidence in support of the decision of the board because the charges were sustained wholly by the testimony of persons who would in a criminal prosecution have been classed as accomplices in the act charged, whereas under the penal code no conviction can be had on the testimony of accomplices alone. The rules of pleading in criminal cases and the rules limiting the effect of evidence therein as fixed in the penal code do not apply to proceedings before the board of medical examiners.

### Health Boards and Officers Not Empowered to Close Schools—Quarantine—School Boards

*(Crane v. School District No. 14 of Tillamook County (Ore.), 188 Pac. R. 712)*

The Supreme Court of Oregon, in affirming a judgment in favor of the plaintiff, holds that it was no defense to an action on a contract which he had made with the defendant to transport its pupils to and from its school for nine months, beginning in September, 1918, that the school was closed from about Oct. 14, 1918, to Feb. 10, 1919, it having been ordered closed by the county health officer, who was directed by the acting state health officer to close all schools, etc., in case of the appearance of an outbreak of influenza in the community. The court says that the statute provides that "the state board of health shall have general supervision of the interests of the health and life of citizens of the state," and that "it shall make and is hereby empowered to enforce, such quarantine regulations as seem best for the preservation of the public health." The statute also makes it the duty of county boards of health to enforce all rules and regulations of the state board of health, which may be issued from time to time for the preservation of the public health and for the prevention of endemic, epidemic and contagious diseases. But the power to make and enforce quarantine regulations given to the state board of health does not embrace or carry with it the authority to close public schools. In operation, quarantining is confined to specific persons who have or who may have been exposed to a contagious disease, and it does not apply to the public in general. Nor should the provision giving to the state board "general supervision of the health and life of the citizens of the state" be construed to mean that it alone has power to close the public schools of the state. Such authority would be very broad and far-reaching, and would have to be read into the statute by construction. If it had been the intent of the legislature to confer such a vast power on the state board of health, it should have used language far more specific and certain than it did use.

With regard to the power of school boards, a provision of the statutes that school boards may, "on account of the prevalence of any contagious disease or to prevent the spread of such contagious disease, prohibit the attendance of any teacher or scholar upon any school under their control," does not empower such boards to close schools. Such authority, if any, must be found in the provision that school "boards shall have entire control of the public schools of their districts." But that does not say that in case of an epidemic of a contagious disease the school board shall close the school. Under its general powers of control and supervision, the closing of the schools for any reason rests in the sound discretion of the school board, and therefore it is not a question of law. The legislature has rightfully assumed that in all such matters the school boards will work in harmony with the boards of health to prevent, suppress, control and regulate the existence and spread of contagious diseases.

In the present case the defendant specifically alleged that the school was closed in obedience to the order of the health officer, and not otherwise, and hence it must follow that the defendant's school was not closed by operation of law. Nor was it a sequence that the closing of the school would suspend the contract between the plaintiff and the defendant.

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# *Society Proceedings*

## COMING MEETINGS

American Physiological Society, Chicago, Dec. 30.
District of Columbia, Medical Society of, Washington, Dec. 1.
Hawaii, Medical Society of, Honolulu, Nov. 18-20.
Medical Association of the Southwest, Wichita, Kan., Nov. 22-24.
Porto Rico, Medical Association of, Ponce, Dec. 13-14.
Radiological Society of North America, Chicago, Dec. 16-17.
Society of American Bacteriologists, Chicago, Dec. 28-30.
Southern Medical Association, Louisville, Ky., Nov. 15-18.
Southern Minnesota Medical Association, Mankato, Nov. 29-30.
Southern Surgical Association, Hot Springs, Va., Dec. 14-16.
Western Surgical Association, Los Angeles, Calif., Dec. 3-4.

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## MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

*Seventieth Annual Session, held at Harrisburg, Oct. 4-7, 1920*

The President, DR. HENRY D. JUMP, Philadelphia, in the Chair

### State Regulation of Medicine

DR. HENRY D. JUMP, Philadelphia: Year after year, advocates of unique forms of treatment ask for state registration. There should be uniform requirements of knowledge in the fundamentals for all who practice the healing art. There is a growing tendency to place medical treatment under state supervision, with the idea that physicians should be under salary and assigned to districts in which to practice. Such a provision would not be desired by the profession. We are justified from the standpoint of the people and the good of our own profession in resisting efforts to establish compulsory health insurance in this state.

### The Physician and the Public Schools

DR. THOMAS E. FINEGAN, Harrisburg: A public school is an institution that is to serve every intellectual necessity of the people who maintain that school. We are not content, therefore, in teaching children the usual subjects that have been put in the curriculum, but one of the first and most essential things to be given consideration is the health of the child. Children should be protected in every way when they are placed in school. We are going to have in a short time a syllabus for public health instruction worked out which begins with the child when he enters school, and goes through the eight years of elementary school course and the four years of the secondary school course.

### The Outlook of Chronic Nephritis

DR. JAMES M. ANDERS, Philadelphia: The rules of renal function in disease are not hard and fast. The classification of cases of chronic nephritis is imperfect. There are many atypical cases probably due to previous infections. The outlook in these cases is modified by the extent of fibrosis; when this is limited, life may not be shortened. Many of the arterial hypertension cases have endured for many years without appreciably deteriorating. Cases of cyanotic kidney due to cardiac disease showing albumin and casts clear up quickly when the heart improves. The prognosis in confirmed chronic parenchymatous nephritis is exceedingly grave, though not

altogether hopeless. In the interstitial cases, the outlook is at times guardedly favorable if recognized early.

DISCUSSION

DR. M. H. FUSSELL, Philadelphia: The recognition of some infection that is causative of nephritis will frequently prevent the dire results of a kidney lesion. It seems to me true that the loss of function in chronic nephritis is made distinctly more dangerous by the thoughtless use of so-called diuretics. It must be borne in mind that casts and albumin do not mean the death warrant, and their presence may be of no importance as to longevity. The functional tests are valuable both in prognosis and in treatment.

### The Health of a Community

DR. JOHN D. MCLEAN, Harrisburg: A union of the medical care of a community with the powers of the state department of health brings about a lessening in the number of persons suffering from diseases. I want to plead with physicians to maintain the health of their communities, especially in rural districts, by reporting cases of typhoid fever at once.

DISCUSSION

DR. ROBERT A. KEILTY, Danville: In an epidemic recently, twenty-nine cases have materialized following the infecting of the water supply of a town of 7,000. It is up to us to protect that water supply. It is up to us in each one of our communities to correlate our work with that of the state department of health.

DR. THOMAS M. STAHLMAN, Pittsburgh: It seems to me that what is badly needed in rural communities is isolation hospitals. When treatment cannot be carried out at home, these patients should be sent to these isolation hospitals. One thing that impressed me in rural communities was the insanitary condition of school buildings.

### End-Results in Peripheral Nerve Injuries

DR. W. WAYNE BABCOCK, Philadelphia, and JOHN O. BOWER, Wyncote: Operations for nerve injuries were performed in 608 cases. Operative exploration of nerves is harmless and usually helpful in the milder forms of injury. Results are much better in operative than in nonoperative treatment. Nerve grafting and lateral implantation give poor results and are rarely necessary. Accurate end-to-end suture is possible in nearly every case, despite long gaps. Regeneration is almost invariable after suture. The rate of regeneration is about one inch a month. The small muscles of the hand are the last to recover. If nerve function has not been restored within three months after healing of an injury, nerve suture should be resorted to.

DISCUSSION

DR. CHARLES H. FRAZIER, Philadelphia: According to the experience of European surgeons early in the war, there is only one operation that need be considered in any case of peripheral nerve injury with complete anatomic nerve block, that is, the end-to-end suture. The power of regeneration in the peripheral nerve is extraordinary, and quite as active as the process of repair and regeneration in other tissues. The peripheral nerve receives its blood supply from minute blood vessels throughout its entire extent; and, if the nerve is completely isolated for 12 or 15 cm. and cut free altogether from a large portion of its arterial supply, the likelihood of arterial regeneration for complete restoration of function is not great. Another point that we should bear in mind and always do is to get freedom from scar tissue. The more nearly we reapproximate the nerve according to its original condition, the greater is the likelihood of restoration of function.

### A New Concept Relative to the Treatment of Malignant Disease

DR. WILLIAM L. CLARK, Philadelphia: Excision or other treatment of a primary malignant lesion, and block dissection of metastatic glands are not sufficient. Migratory cells in lymphatic ducts must also be taken into consideration, else they will drain into the tissues after glands are removed, and rapid progress of disease usually results. Lethal action of radium on malignant cells of all types has been proved in laboratory and in practice. At least one maximum radium treatment with accurate technic is advocated, preparatory to any other procedure, for the purpose of rendering benign the migratory cells in ducts, and to wall off glands with fibrous tissue. At least three radium treatments, averaging six weeks apart, should also follow any operative or other procedure. The folly of depending on operative surgery or other methods alone, in cancer with metastasis, and the wisdom of anteoperative and postoperative radium treatment is amply demonstrated by clinical evidence. The invaded glands not broken down will usually disappear under radium treatment, and excision will not be necessary. If degenerated in the interior, they will not disappear, but radium treatment will convert the capsule into benign fibrous tissue. Then the gland may be incised and drained with safety. Hollow, noncorrosive steel needles, containing radium salts representing a known quantity of radium element, inserted into malignant growths and glands, produce results that could not be produced by radium applied from the outside in capsules or plaques. The judicious combined use of operative surgery, electrothermic methods, radium and the roentgen ray will often clinically cure even very advanced and inoperable cases of carcinoma and sarcoma.

DISCUSSION

DR. G. BETTON MASSEY, Philadelphia: I do not see how the radium rays are so much more effective than roentgen rays when properly applied, and it is possible that some of the bad odor of the roentgen-ray treatment of cancer is due to a lack of use of the proper remedy at the proper time: that is, the lack of use of several remedies, the association of remedies, the knife possibly in some cases, but more particularly the electrothermic method which gets rid of the bulk of the accessible growth before the roentgen ray is applied. It has appeared to me that the roentgen ray has a special field in the subdermic diffusions. I have patients that are well at the end of from seventeen to twenty years from this electrothermic treatment, or, as it was then called, cataphoric destruction.

### Obstetrics and the General Practitioner

DR. J. WHITRIDGE WILLIAMS, Baltimore: Many specialists tend to overlook the fact that at least 80 per cent. of all deliveries must be conducted by the family physician or by a midwife, and that the services of specialists are available only in large cities and towns. Expert knowledge of the niceties of pelvimetry cannot be expected of the average practitioner; all that can fairly be demanded is that he so treat his patients that they may be reasonably assured of a successful outcome, and the recognition of gross deformities. The patient should be taught to engage his services at an early period of pregnancy, that she may be assured of reasonable prenatal care and all that it implies, particularly in reducing infant mortality during the first year of life. Patients with gross pelvic deformity, as well as those in whom unrecognized disproportion has led to disastrous results in the past, should be sent to specialists for expert advice. Dublin has shown that of all maternal deaths in this country, 45 per cent. are due to infection and 26 per cent. to various forms of toxemia, while the remaining are due to other causes combined, such as dystocia and hemorrhage. Attention should be directed especially toward diminution of mortality from the first two causes. The remedies are aseptic technic and the greatest possible restriction of vaginal examination, which is replaced by abdominal palpation and rectal examination.

DISCUSSION

DR. BARTON COOKE HIRST, Philadelphia: There is a great future for the reduction of morbidity in women after childbirth. It is possible for the physician to cut off 61 per cent. of all diseases of women by attention to two factors: the repair of injuries and the prevention of retroversion. One cannot repair the injuries of childbirth immediately after delivery. By making formal intermediate operation, all the injuries can be repaired. Postural treatment during the puerperium will reduce displacements to about 3 per cent.

DR. WILLIAM N. BRADLEY, Philadelphia: In my work at the Starr Center in Philadelphia, I have had under my care for the last year 252 expectant mothers. Of this number, 131

have been delivered. Of the 131, we had two abortions and one premature labor with a living baby. The entire 128 living infants were being breast fed at the end of one month, which is an important point from the standpoint of the pediatrician. The importance of early consultation of the physician by pregnant women cannot be overestimated. I find that, in the class of women we have to deal with, the blood pressure during pregnancy rarely exceeds an average of 105. This group of women three months after delivery have a blood pressure of 115 or 120. We should not go to the extreme of underfeeding these women in pregnancy in order that they may have a delivery free from danger.

DR. PAUL TITUS, Pittsburgh: We have found that students who are on duty only eighteen days become proficient in rectal examination, and are able to avoid a large number of vaginal examinations. As regards the immediate repair of the perineum, with all respect to Dr. Hirst I differ with him. Certainly it does no harm to attempt repair. I believe that a certain amount of granulating suppurating surface is avoided by the closure of the perineum immediately after the birth of the child.

DR. J. WHITRIDGE WILLIAMS, Baltimore: Puerperal infection in the hands of the profession at large in this country causes as many deaths as it did thirty years ago. That is not my statement, but I got it from reading statistics. The consequence is that there is radical need of prevention of vaginal examination.

### Altered Blood Pressure as a Manifestation of Imbalance

DR. DANIEL J. MCCARTHY, Philadelphia: Any fault in any one of the important endocrine glandular structures leads to an essential fault in the blood pressure mechanism, and any fault here leads to serious damage to the developing brain and nervous system. A common cause of this condition in children is tuberculosis in the parent. As the child grows to manhood, the increased mental reflexes give a hypersensitive individual with a tendency to introspection and dissociation of personality. In this group of cases, adolescent insanity is not infrequently seen.

## JOINT MEETING WITH THE INTERSTATE ASSOCIATION OF ANESTHETISTS AND THE NATIONAL ANESTHESIA RESEARCH SOCIETY

### Blood Pressure Guides in Anesthesia and Surgery

DR. ALBERT H. MILLER, Providence, R. I.: Despite opinions to the contrary, a working definition of the condition of surgical shock can be made and followed. The blood pressure is our most certain guide to the condition of the circulatory system. Most of the fatalities attributed to surgical shock are due to factors other than surgical traumatism which, if understood, might be controlled.

DISCUSSION

DR. E. I. MCKESSON, Toledo, Ohio: One who is interpreting blood pressure changes in a surgical operation must be keen; he must be watchful; he must be aware of what the anesthetist is doing from the anesthetic standpoint; he must know what the surgeon is doing, and he must have a clear conception of the patient in order properly to locate causes of depression.

DR. F. H. MCMECHAN, Avon Lake, Ohio: A new uniform anesthesia record sheet has been drawn up by a special committee of experts to assist all those who wish to protect their patients under anesthesia with blood pressure guides.

### Third-Stage Ether Anesthesia: A Subclassification Regarding the Significance of the Position and Movements of the Eyeball

DR. ARTHUR E. GUEDEL, Indianapolis: My plea is for lighter and better anesthesia and for better teaching of anesthesia in our medical schools and hospitals. As long as we note any movement or eccentric position of the eyeball, aside from that which might be normal for the occasional patient, that patient has not had too much anesthetic; but after anesthesia has been well inaugurated, he has had quite enough. The upper part of the third stage, namely, the first stratum, is anesthesia entirely as satisfactory to the surgeon as the second, third or fourth stratum of the third stage.

### The Anesthetic Problem in Lung Surgery

DR. JAMES T. GWATHMEY, New York: Nitrous oxid and oxygen are preferable to ether and air. A larger amount of oxygen can be given if preceded by an average in adults of ⅜ grain of morphin. Positive pressure of from 7 to 10 mm. of mercury must be maintained in the rubber bag. With this method, first-stage anesthesia is kept up throughout, as indicated by pink color, active lid reflex and rolling eye. The patient should not become cyanosed at any time.

DISCUSSION

DR. JOHN R. MCCURDY, Pittsburgh: I would emphasize the importance of the morphinization of the patient before any procedure is begun. Three-eighths grain of morphin administered in divided doses, as Dr. Gwathmey has advised, is not a dangerous dose in these cases. The morphin undoubtedly produces a much better respiratory condition; moreover, it gives the patient comfort and relief from pain irrespective of the anesthetic agent administered; that is not only humane, but assists materially both the anesthetist and the surgeon.

DR. R. PROCTOR MCGEE, Pittsburgh: Dr. Gwathmey gave anesthetics during the war for the most extensive chest surgery that has been carried on in modern times. He gave the anesthetic day after day in St. Mihiel and the Argonne, in a hospital that received nonportable casualties, and in every instance his patients seemed to sleep easily and to stand the operation with the best results. In fact, when Major Yates made his report on the low death rate that he had with his chest operations, it took a good deal of faith for many surgeons to believe that the work could be done so well; but Dr. Gwathmey deserves a large share of praise for what was accomplished in saving the lives of wounded soldiers with chest injuries.

DR. E. I. MCKESSON, Toledo, Ohio: I agree vigorously with Dr. Gwathmey's idea of maintaining a light analgesia in lung surgery. There is no necessity I know of for maintaining a deep anesthesia. In fact, I think it is quite distinctly more dangerous to do so. A good sized dose of morphin is of more value to the patient than the damage it might possibly do by lowering the blood pressure.

DR. F. H. MCMECHAN, Avon Lake, Ohio: The papers of Dr. Guedel and Dr. Gwathmey are based on research work that was conducted in the midst of strenuous campaigning in war. When this meeting was scheduled, the National Research Society offered a series of prizes for the best papers that would be presented on research subjects. The Committee on Prize Award has awarded a prize to Dr. Guedel, his paper being based on 10,000 anesthesias administered in France, and a second prize has been awarded ot Dr. James T. Gwathmey for his wonderful work in lung surgery, which Yates of Milwaukee said reduced the mortality to practically one-third or less than what it had been before Dr. Gwathmey arrived on the scene of action.

### Nitrous Oxid-Oxygen Anesthesia for Tonsil and Sinus Surgery in the Forward Inclined Sitting Posture

DR. IRA O. DENMAN, Toledo, Ohio: For the last ten years I have used this position exclusively in my work, believing that it is the safest position for oral or sinus surgery. The field of operation is kept clean and free from blood and other fluids, and irrigation is facilitated if needed. Inspiration of blood or infected material is avoided. With this position, any procedure can be carried out under general anesthesia with nitrous oxid and oxygen.

DISCUSSION

DR. E. I. MCKESSON, Toledo, Ohio: I have administered many anesthetics for tonsil work with the various forms of anesthesia during the last years, but none gives me the pleasure and the confidence and the control of the patient that nitrous oxid does, particularly in this position. I have been much excited several times in trying to resuscitate a patient who had inhaled a pharynx full of blood. If there were nothing else to recommend the forward inclined posture, this would be sufficient.

*(To be continued)*

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Physiology, Baltimore

October, 1920, **53**, No. 3

*Antagonism of Inhibitory Action of Epinephrin and Depression of Cardiac Vagus by Constituent of Certain Tissue Extracts. J. B. Collip, Edmonton, Alberta.—p. 343.
Reciprocal Reactions in Cardiovascular System. E. W. Wickwire, New E. G. Martin, A. C. Franklin and C. Hield, Palo Alto, Calif.—p. 421.
Relation of Initial Length and Initial Tension of Auricular Fiber on Myodynamics and Cardiodynamics. R. Gesell, San Francisco.—p. 377.
*Rôle of Pancreas in Hyperglycemia from Ether. E. L. Ross and L. H. Davis, Chicago.—p. 391.
Physiologic Studies on Planaria. IV. Oxygen Consumption During Starvation. L. H. Hyman, Chicago.—p. 399.
Vasomotor Reflexes from Receptor Stimulation in Intact Animals. E. G. Martin, A. C. Franklin and C. Hield, Palo Alta, Calif.—p. 421.
*Studies in Placental Permeability. I. Differential Resistance to Certain Solutions Offered by Placenta in Cat. R. S. Cunningham, Baltimore.—p. 439.
Production of Intracellular Acidity by Neutral and Alkaline Solutions Containing Carbon Dioxid. M. H. Jacobs, Philadelphia.—p. 457.
Effect of Salt Ingestion on Cerebrospinal Fluid Pressure and Brain Volume. F. E. B. Foley and T. J. Putnam, Boston.—p. 464.
*Antagonism of Depressor Action of Small Doses of Epinephrin by Tissue Extracts. J. B. Collip, Edmonton, Alberta.—p. 477.
Sex Difference in Presence of Natural Hemolysin in Rat. Y. Suzuki, Philadelphia.—p. 483.
*Studies on Absorption from Serous Cavities. III. Effect of Dextrose on Peritoneal Mesothelium. R. S. Cunningham, Baltimore.—p. 488.

**Effect of Tissue Extracts on Involuntary Muscle.**—Extracts of various tissues were found by Collip to have definite stimulatory effect on isolated intestinal and uterine musculature. It is suggested that substances similar to those found in extracts of various tissues may be present in greater or less amount in all tissues.

**Relation of Pancreas to Hyperglycemia.**—The hyperglycemia induced by ether was measured by Ross and Davis on two series of dogs. One group had partial pancreatectomies and the other group had complete pancreatectomies. The effect of ether anesthesia on the urine dextrose was also measured in the case of the pancreatectomized dogs. The hyperglycemia induced by ether anesthesia of partially pancreatectomized dogs was the same as that of normal dogs. The hyperglycemia induced by ether anesthesia of completely pancreatectomized dogs was practically the same as normal. Comparing the dextrose output in the urine half an hour before anesthesia and half an hour during anesthesia showed a marked decrease in the elimination of dextrose. Comparing the rate mobilization of dextrose with and without ether showed that it was markedly decreased by the drug. The results lead the authors to conclude that the chief action of ether in causing a hyperglycemia in normal animals is to reduce the influence of the internal secretion of the pancreas on glycolysis.

**Permeability of Placenta.**—The principal facts demonstrated by Cunningham's experiments are the differences in the permeability of the endothelial and ectodermal layers of the placenta, and the differences in the resistance offered to the two experimental salts by the fetal ectoderm. It is evident that the placenta may be considered as two protoplasmic membranes which are directly applied to each other in such a way that they appear anatomically as a single membrane separating the two bloods, but have in reality entirely different physiologic properties.

**Effect of Epinephrin on Blood Pressure.**—Collip found that the fall in blood pressure produced by a small dose of epinephrin is antagonized by various tissue extracts. The rise in blood pressure produced by a definite dose of epinephrin is augmented and prolonged by administration of tissue extract. It is held that both these types of effects are of the same order.

**Absorption from Serous Cavities.**—Cunningham's experiments do not settle the question of the feasibility of using the peritoneal cavity as a route for the administration of dextrose; but they furnish certain evidence which is of value, both in regard to this practical application and to the general reactions of the peritoneal mesothelium. The experimental results which are favorable for the use of this method are: the general effect on the animals, the nature of the curve of absorption, the rapid recovery of the mesothelium, and the absence of adhesions. But the changes in the mesothelial cells cannot be considered as directly favorable, and may even prove a definite contraindication.

### American Journal of Public Health, Boston

September, 1920, **10**, No. 9

State and Municipal Meat Inspection. J. Roberts, Washington, D. C.—p. 697.
Recovery of Streptococcus Hemolyticus from Restaurant Tableware. C. C. Saelhof and W. J. R. Heinekamp, Chicago.—p. 704.
On the Solution of Pneumococci by Bile. F. B. Kelly, Chicago.—p. 708.
City Health Bulletins: Their Use and Misuse, Necessity for Additional Mailing Privileges. M. J. Colton, Cumberland, Md.—p. 712.
Ideals in Organization of an Industrial Medical Service. E. R. Hayhurst, Columbus, Ohio.—p. 715.
Organization of Control of Pasteurization. F. O. Tonney, Chicago.—p. 716.
Public Water Supply Contaminated by an Interconnected Private Water Supply. C. M. Saville, Hartford, Conn.—p. 724.
Campaign Against Malaria in Cuba, 1918-19. F. Villuendas, Havana, Cuba.—p. 728.
Country Slaughterhouse; How to Build It. G. H. Parks, Washington, D. C.—p. 731.

### American Journal of Ophthalmology, Chicago

October, 1920, **3**, No. 10.

Reticular Keratitis. W. G. M. Byers, Montreal—p. 717.
Phakoerisis. I. Barraquer, Barcelona, Spain.—p. 721.
Safest Method of Cataract Extraction. R. O'Connor, San Francisco.—p. 726.
Case of Intra-ocular Sarcoma with Unusual Operative History. E. C. Ellett, Memphis, Tenn.—p. 732.
Visual Field Findings in Case of Brain Tumor. W. R. Parker, Detroit.—p. 736.
Safety Procedures in Operation of Senile Cataract. H. W. Woodruff, Joliet, Ill.—p. 739.
Delirium Following Cataract and Other Eye Operations. W. A. Fisher, Chicago.—p. 741.
Postdiphtheritic Ocular Paralyses; Report of Three Cases. M. Lombardo, Brooklyn.—p. 747.
Prism Meter Measure for Use in Retinoscopy. J. N. Evans, Brooklyn.—p. 755.
Advancement by Means of Silver Screw Clamp. R. Von Der Heydt, Chicago.—p. 755.
Herpes Zoster Ophthalmicus. H. V. Würdemann, Seattle.—p. 756.

### American Journal of Roentgenology, New York

September, 1920, **7**, No. 9

Value of Roentgen Ray in Study of Diverticulitis of Colon. A. W. George and R. D. Leonard, Boston.—p. 421.
Electrical Dangers in Roentgen-Ray Laboratories. J. S. Shearer, Ithaca, N. Y.—p. 432.
Radium Therapy. R. Matas, New Orleans.—p. 440.
New Method of Mounting Intensifying Screens. R. T. Morrison, Rochester, N. Y.—p. 446.
Stereofluoroscope. S. Heck, Salem, Ohio.—p. 448.
Roentgen-Ray Studies in Gout. E. D. McCarty, Boston.—p. 451.
Disc Attachment for Victor Serial Timer. H. B. Thompson, Seattle.—p. 459.
Case of Osteosarcoma of Tibia. C. Eastmond, Brooklyn.—p. 460.
Piece of Glass in Hand. A. R. Taft, Charleston, S. C.—p. 461.

### Annals of Surgery, Philadelphia

October, 1920, **72**, No. 4

*Indications for Active Immediate Mobilization in Treatment of Joint Injuries. C. Willems, Liége, Belgium.—p. 425.
*Fractures of Forearm in Region of Wrist. A. Troell, Stockholm.—p. 428.
*Rôle of Cancellous Tissue in Healing Bone. T. W. Todd, Cleveland.—p. 452.
Recognition of Dead Bone Based on Pathologic and Roentgen-Ray Studies. D. B. Phemister, Chicago.—p. 466.
*Diagnosis and Therapy of Bone Typhoid. G. Bohmansson, Orebro, Sweden.—p. 486.
Surgical Aspects of Charcot Joint and Other Syphilitic Bone and Joint Lesions. F. J. Cotton, Boston.—p. 488.
Forward Dislocation of Astragalus and With It the Foot. R. H. F. Dinegar, New York.—p. 494.
*Adventitious Ligaments Simulating Cervical Ribs. A. A. Law, Minneapolis.—p. 497.
Spermatocele. E. T. Crossan, Philadelphia.—p. 500.
Varicocele Operation and Avoidance of Postoperative Induration. P. G. Skillern, Jr., Philadelphia.—p. 508.
Cutting Bone Flap in Cranial Surgery. H. C. Masland, Philadelphia.—p. 511.

**Active Mobilization in Joint Injuries.**—In a résumé of the actual state of the question, Willems estimates that active mobilization knows no contraindications by reason of extent

of bony lesions, or extent of destruction of the ligaments. He urges surgeons not to abandon the method at the first difficulty, but, on the contrary, to pursue it to the end, with the conviction that the functional result will be the more brilliant in the same proportion as the efforts to obtain it have been more energentic and tenacious. Bony lesions constitute no contraindication to active mobilization, and in such cases they give unhoped for success.

**Fractures of Forearm Near Wrist.**—Troell feels that his observations confirm the belief that the forearm fractures in the region of the wrist, which are the usual ones for individuals with incomplete bone development are, as a rule, with regard to manner of origin, compression fractures, or a combination of compression and flexion fractures.

**Rôle of Cancellous Tissue in Bone Regeneration.**—The regeneration processes of the cancellous tissue of human long bones as revealed by cases of chronic osteomyelitis were studied by Todd. He believes that cancellous tissue is one of the chief agents in regeneration of bone, and like the cambium layer of periosteum, should be treated at operation in the most conservative manner, consistent with thorough exploration and drainage. In regeneration the cancellous tissue nearest the midlength of the bone grows most rapidly, whereas that in or near the articular extremities shows less readiness to proliferate and fill the cavity. Septic bone cavities should be permitted to heal from the bottom, the wound in the soft tissues being kept widely open until this has occurred. The least possible mechanical disturbance of the cancellous tissue should be employed and no "disinfection" of the cavity attempted, for this simply kills the remaining tissue from which regeneration is expected. Regenerating bone is very sensitive to and easily affected by pressure, even of soft tissues, and by inefficient drainage. It is not adversely affected by the ambulatory method of treatment. Compact bone plays a very minor part in regeneration.

**Bone Foci Lead to Diagnosis of Typhoid.**—Bohmansson cites a case in which multiple typhoid bone foci led to a diagnosis of typhoid when no other symptoms aroused a suspicion of typhoid. A positive culture was made from a bone focus. Vaccine therapy was introduced, with doses increasing from 5,000,000 up to 5,000,000,000. The Widal reaction now was positive. Bohmansson considers that this argues in favor of a low virulence of the bacteria, and further emphasizes the already well known fact that the intensity of the primary disease does not appear to be of any importance with regard to an eventual appearance of pyemic bone typhoid.

**Adventitious Ligaments Simulating Cervical Ribs.**—In the cases of some of the shorter and more rudimentary ribs, Law found that the forward projecting tips of these ribs were occasionally attached by a definite ligament to the first rib or to the sternum. There was in the four cases seen by him the invariable angling over the ligament and the pinching of the nerves and artery between the ligament and the scalenus anticus muscle, just as these structures are pinched between the muscle and rib in the cervical rib cases. The ligaments were all tightly stretched, and while they all had their origin from the tip of the seventh cervical transverse process, they varied markedly in their point of insertion, for one was inserted with the scalenus anticus muscle into the scalene tubercle of the first rib, another into the costoclavicular ligament, the next into the sternoclavicular ligament, while the last was inserted well toward the midline into the interclavicular ligament close to the head of the clavicle. In none of the cases studied was there a tendency to dilatation of the subclavian artery distal to the ligament, and only in one was the pulse appreciably weaker on the obstructed side. In each instance, after operative intervention, while the neuralgia persisted for a while, it promptly became less severe and ultimate and complete relief was obtained.

## Archives of Internal Medicine, Chicago

October, 1920, **26**, No. 4

*Blood Pressure in University Freshmen and Office Patients. W. C. Alvarez, R. Wulzen, F. B. Taylor and E. Starkweather, San Francisco.—p. 381.
*Method for Permanent Staining of Reticulated Red Cells. T. D. Cunningham, Boston.—p. 405.
*Behavior of Pyloric Sphincter in Normal Man. C. W. McClure, L. Reynolds and C. O. Schwartz, Boston.—p. 410.
*Heart in Scarlet Fever. H. A. Rosenbaum, Chicago.—p. 424.
*Hemolysins from Parasitic Worms. B. Schwartz, Washington, D. C. —p. 431.
*Method for Quantitative Determination of Protein in Cerebrospinal Fluid. W. Denis and J. B. Ayer, Boston.—p. 436.
*Blood Chemistry Studies in Influenzal Pneumonia. C. W. Wells, Des Moines, Iowa.—p. 443.
*Blood Chemistry of Pernicious Anemia. A. O. Gettler and E. Lindeman, New York.—p. 453.
*Xanthochromia; Report of Three Cases. L. A. Levison, Toledo, Ohio. —p. 459.
*Correlation of Basal Metabolism and Pulse Rate in Patients with Hyperthyroidism. C. C. Sturgis and E. H. Tompkins, Boston.—p. 467.
*Neuritis of Cranial Nerves in Lethargic Encephalitis and Differential Anatomic Diagnosis Between It and Acute Poliomyelitis. M. T. Burrows, St. Louis.—p. 477.

**Studies on Blood Pressure.**—A statistical analysis was made by Alvarez of the blood pressures in 8,737 University of California freshmen and 1,000 office patients. It is suggested that hypertension is based on a hereditary peculiarity. Its manifestations appear to be suppressed in women as long as the ovaries function well. From clinical experience it would seem that pressures over 127 in women, and over 130 in young men, are indicative of a hypertensive diathesis which is associated with many typical symptoms and findings. Fifty out of a hundred men will die of cardiovascular disease. This makes its appearance at different ages in the different men. Alvarez believes that careful examination would show the beginnings of such disease in childhood and youth, even in those individuals who are to round out a fairly long life. He believes that a hereditary predisposition is the most important etiologic factor.

**Staining Reticulated Cells.**—Permanent preparations are made by Cunningham by combining a vital with a Wright's stain. The reticulation is as clear, if not clearer, than by the older methods, and the Wright's stain retains all its differential qualities, except the polychromatophilia, which is not present. The ease and simplicity of this method brings the study of reticulated erythrocytes within the scope of routine blood examination. A small drop of a 0.3 or 0.5 per cent. aqueous or alcoholic solution of brilliant cresyl blue is placed on the end of a clean slide or the center of a cover glass and smeared around over an area 1.5 cm. in diameter. Next, a drop of fresh blood is placed on a clean coverslip and dropping it face down on one of the areas of dried stain. The stain goes into solution almost instantly. The cover glasses, or slide and cover glass, are now pulled apart as in making an ordinary blood smear and are permitted to dry. On drying, the blood turns a dirty greenish blue color. The slide or cover glass is then stained with Wright's blood stain. The preparation is dried in the usual manner and mounted in Canada balsam. The reticulum is stained a deep or light blue, depending on its density, and gives a striking picture in its contrast with the pink protoplasm of the cell.

**Action of Pyloric Sphincter.**—The conclusions reached by McClure et al. are as follows: Finely divided carbohydrate, protein or fatty foodstuffs begin to leave the normal human stomach within a comparatively few minutes after their initial ingestion. Under normal conditions the human pyloric sphincter opens regularly at the approach of each antral peristaltic wave, allows chyme to pass through into the duodenum during an appreciable length of time, and closes when the antral peristaltic wave has spent itself. The introduction of fortieth-normal, twentieth-normal or tenth-normal hydrochloric acid solutions into the first, second or third portions of the normal human duodenum either produced no effect on the opening of the pyloric sphincter as observed by means of the fluoroscope, or produced effects which were interpreted as the result of abnormal irritation of the duodenal mucosa. Neutralization of the contents of the first portion of the duodenum did not prevent the closing of the pyloric sphincter. The results obtained indicate that acid is not the principal factor controlling the opening and closure of the pyloric sphincter in man.

**Heart Complications in Scarlet Fever.**—Among 1,770 scarlet fever patients cardiac complications were observed in 106. This does not include instances of increased rapidity nor

occasional slight irregularity. Twelve of these had valvular defects antedating the scarlet fever. In the remaining ninety-four cases, a diagnosis of myocarditis was made in eighty-eight, of endocarditis in four and pericarditis in three. (One patient had both pericarditis and endocarditis.) Pericarditis was present in three cases, 17 per cent. Two of the patients died. Endocarditis was present in four cases, 0.22 per cent. Systolic murmurs of the apex were frequently present but were usually regarded as functional or relative. Rosenbaum suggests that the low percentage of endocarditis as compared with the percentage of several other series may be due to the milder type of scarlet fever in which the case mortality was less than 4 per cent. Unless very severe, old heart disease does not necessarily indicate a serious prognosis in scarlet fever.

**Hemolysins from Helminths.**—The view is upheld by Schwartz that parasitic worms secrete toxic substances that are absorbed by the host because it not only affords a better explanation of the toxic symptoms of helminthiasis than the theory of "reflex action," but also affords an explanation of certain aspects of the pathology of helminthiasis, which are inexplicable on the bases of any other view that has thus far been advanced.

**Determination of Protein in Cerebrospinal Fluid.**—A method is given by Denis and Ayer for determination of total protein in the spinal fluid, accurate to within approximately 5 per cent. It has the advantage that only a small amount of fluid is employed, that it is equally accurate with protein-poor or protein-rich solutions, and that a determination may be made in about ten minutes.

**Blood Chemistry in Influenzal Pneumonia.**—In most of the fatal cases in Wells' study an increase in blood uric acid was shown. The average uric acid found in thirty-nine nonfatal cases was 3.14 mg. per hundred c.c. of blood, while in ten fatal cases the average was 4.45 mg. Four patients in this series had uric acid values over 10.0 mg. All these patients recovered. The serious significance of the retention of over 5.0 mg. of creatinin per hundred c.c. of blood is cited. One patient gave findings of 148 mg. of urea nitrogen, yet recovered. Seven of the nonfatal cases, and three of the fatal cases gave findings of urea nitrogen over 40.0 mg. per hundred c.c. of blood. The carbon dioxid combining power of the blood plasma was noted in a few cases only, but Wells feels that the conclusion is warranted that a lowering of the carbon dioxid combining power of the blood plasma is very apt to be found in patients seriously ill, and particularly when there is also extensive pulmonary involvement or marked circulatory disturbance.

**Blood Chemistry of Pernicious Anemia.**—The results of the chemical and physical analysis of the blood in eighty-seven cases of pernicious anemia are reported by Gettler and Lindemann. The nonprotein nitrogen, urea and cretinin values are somewhat higher than normal. This is probably due, not to a permanent kidney lesion, but rather to the decreased amount due, not to a permanent kidney lesion, but rather to the decreased amount of circulating blood. The uric acid is much above normal. The amino-acid content is greatly increased due to excessive destruction of serum protein. The blood sugar is abnormally high. The alkaline reserve is subnormal. The last three point to the fact that in pernicious anemia the power of oxidation within the cell has been reduced to an abnormally low level. The refraction and specific gravity are both astonishingly low, indicating deficiency in serum albumin, serum globulin and fibrinogen. In most instances the freezing point is very near to normal. It is slightly raised in a small percentage of cases. This is due to the small increase of nonprotein nitrogenous substances and to the presence of normal or slightly increased amounts of inorganic salts.

**Xanthochromia.**—Levison is convinced that there are many conditions which may cause a yellow spinal fluid. The great variability in the disease processes in which xanthochromia has been found renders the color itself of no diagnostic value. A yellow fluid is always diagnostic of an organic lesion or infectious process with the exception of those cases in which serum has been injected intraspinously. The presence of the Froin syndrome is pathognomonic of an obstructive type of spinal lesion.

**Pulse Rate and Basal Metabolism in Hyperthyroidism.**—In a study of 496 basal metabolism determinations on 154 patients with hyperthyroidism made by Sturgis and Tompkins, there was a tachycardia of 90 or more to the minute, associated with a basal metabolism of plus 15 per cent, or more in all but 16 per cent. In seventy instances when the metabolism fell to normal there was a simultaneous fall in pulse rate in 78 per cent. to below 90. In fifty-two patients on whom a number of metabolism determination were made, the pulse rate gave an accurate idea of the course of the disease as compared to the basal metabolism in 85 per cent. In a series of 106 hospital patients with various diagnoses and normal basal metabolism only five had a heart rate of 90 or more to the minute. There is in general an interrelationship between the pulse rate and metabolism when a group of individuals are considered; that is, an extreme degree of tachycardia suggests a greatly increased metabolism while a slight tachycardia usually indicates a slight or moderate increase. The fact that a pulse rate at complete rest below 90 per minute is seldom and below 80 per minute is rarely associated with an increase in metabolism Sturgis and Tompkins believe to be of practical importance in the recognition of the large group of nervous patients who have symptoms similar to those occurring in hyperthyroidism.

**Cranial Nerve Neuritis in Lethargic Encephalitis.**—The three cases described by Burrows present the clinical and pathological picture that is now known as diagnostic of "encephalitis lethargica." The lesions noted in the central nervous system in these cases are those of an acute inflammation which in its histology is not different in many of its characters from that which is known to occur in acute poliomyelitis or infantile paralysis.

## Boston Medical and Surgical Journal

Oct. 28, 1920, **183**, No. 18

*Use of Water in Diseases of Childhood. F. B. Talbot, Boston.—p. 503.
Cause and Prevention of Overstimulation of Modern American Child. E. St. J. Johnson, New Bedford, Mass.—p. 507.
Significance of Meningeal Symptoms. A. C. Eastman, Springfield, Mass.—p. 514.
Parental Responsibility. H. I. Bowditch, Boston.—p. 518.
Orchitis in Mumps. C. Wesselhoeft, Boston.—p. 520.

**Use of Water in Childhood.**—Talbot is of the opinion that the use of water in childhood is a subject which is overlooked too much by physicians. He discusses its use in diarrhea, pneumonia and intestinal intoxication.

## Journal of Biological Chemistry, Baltimore

October, 1920, **44**, No. 1

Skimmed Milk as Supplement to Corn in Feeding. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 1.
Respiration of Cereal Plants and Grains. C. H. Bailey and A. M. Gurjar, St. Paul.
II. Respiration of Sprouted Wheat.—p. 5.
III. Respiration of Rice Paddy and Milled Rice.—p. 9.
IV. Respiration of Frosted Wheat Plants.—p. 13.
V. Respiration of Wheat Plants Infected with Stem Rust.—p. 17.
*Occurrence of Diastase in Sweet Potato in Relation to Preparation of Sweet Potato Syrup. H. C. Gore, Washington, D. C.—p. 19.
Calcium Requirement of Maintenance in Man. H. C. Sherman, New York.—p. 21.
Production of Acetaldehyd by Certain Pentose Fermenting Bacteria. W. H. Peterson and E. B. Fred, Madison, Wis.—p. 29.
*Estimation of Chlorids in Blood. V. C. Myers and J. J. Short, New York.—p. 47.
*Rapid Colorimetric Methods for Determination of Phosphorus in Urine and Blood. R. D. Bell and E. A. Doisy, St. Louis.—p. 55.
Effect of Diet on Excretion of Indican and Phenols. F. P. Underhill and G. E. Simpson, New Haven.—p. 69.
*Biochemical Studies on Marine Organisms. I. Occurrence of Copper. W. C. Rose and M. Bodansky, Galveston, Texas.—p. 99.
Factors Which Interfere with Use of Yeast as Test Organism for Antineuritic Substance. G. de P. Souza and E. V. McCollum, Baltimore.—p. 113.
*Hematorespiratory Functions. VI. Alteration of Carbon Dioxid Ratio ($H_2CO_3$ : $NaHCO_3$) in Blood During Elevation of Body Temperature. H. W. Haggard, New Haven, Conn.—p. 131.
Nutritive Properties of Milk, with Special Reference to Reproduction in Albino Rat. H. A. Mattill and R. E. Conklin, Rochester, N. Y.—p. 132.
*Effect of Cooking on Water-Soluble Vitamin in Carrots and Navy Beans. E. W. Miller, Chicago.—p. 159.
*Water-Soluble B in Cabbage and Onion. B. K. Whipple, Chicago.—p. 175.

Can "Home Grown Rations" Supply Proteins of Adequate Quality for High Milk Production? II. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 189.
Preservation of Specimens of Blood Intended for Blood Sugar Determinations. W. Denis and M. Aldrich, Boston.—p. 203.

**Diastase in Sweet Potato.**—Gore found that sweet potatoes are high in diastatic power and it is possible to convert nearly all their starch into soluble carbohydrates by slowly cooking the potatoes in water. The pulp formed by mashing the cooked potatoes with hot water drains readily, permitting the easy recovery of the sweet juice.

**Estimation of Chlorids in Blood.**—A method of chlorid estimation in blood is described by Myers and Short in which the same picric acid filtrate employed for the estimation of sugar and creatinin, and the same solutions (diluted) ordinarily employed for the estimation of chlorids in urine are utilized.

**Determination of Phosphorus in Urine.**—Rapid colorimetric methods are described by Bell and Doisy for the determination of inorganic and total phosphorus in urine. While not so accurate as suitable gravimetric determinations, these methods are said to be much more convenient and are sufficiently accurate for many purposes. The method for inorganic phosphate appears to be more accurate and rapid than the usual uranium titration. Methods are also described for the determination of inorganic and acid-soluble phosphorus in blood.

**Copper in Marine Organisms.**—Analyses of twenty specimens of common fishes by Rose and Bodansky showed the presence of copper in every case except one, and the failure to detect it in this case they believe was probably due to the small amount of material available for analysis. The average copper content was approximately 2.5 mg. per kilogram. It is believed that copper is a normal—possibly an essential—constituent of marine animals, and not an accidental one due to the trace of this metal in sea water.

**Hematorespiratory Functions.**—Haggard states that rise in body temperature lowers the alveolar carbon dioxid tension and reduces the amount of carbon dioxid in solution in blood. No compensatory changes in the carbon dioxid combining power of the blood occurs. The alkali in use is not lowered in proportion to the decrease in dissolved carbon dioxid. The carbon dioxid ratio is therefore reduced and, unless there is some alteration in the dissociation constants of the blood, the $C_H$ is presumably lowered. In vitro temperature affects the dissociation curve of blood solely by altering the solubility of carbon dioxid and concentration of carbonic acid. The concentration of carbonic acid which produces a certain amount of sodium bicarbonate at 17 or 20 C. produces the same amount at 40 C.

**Vitamins in Cooked Carrots and Navy Beans.**—Miller states that cooking carrots at 100 C. for thirty minutes caused no reduction in the vitamin. Neither was there any destruction when carrots were packed tightly in a jar and heated at 115 C. for forty-five minutes. Cooking navy beans at 120 C. for thirty minutes decreased the vitamin content 40.6 per cent. In this case the beans were somewhat overcooked. Cooking navy beans in 0.5 per cent. sodium bicarbonate solution for 1 hour and 10 minutes caused a loss of 37.5 per cent. of the vitamin. A large proportion of the vitamin, from 36 to 70 per cent., was present in the cooking water.

**Vitamin in Cabbage and Onions.**—Whipple claims that water-soluble B in cabbage is not destroyed by boiling for from thirty to sixty minutes or by boiling with acid or alkali. It is present in onions and is not destroyed by boiling. Not more than one half the water-soluble B is lost in the cooking water from cabbage or onions boiled for thirty minutes.

## Journal of Infectious Diseases, Chicago

October, 1920, **27**, No. 4

*Relation Between Number of Bacteria and Acid Production in Fermentation of Xylose. J. A. Anderson, E. B. Fred and W. H. Peterson, Madison, Wis.—p. 281.
*Leprosy-Like Disease in Lungs of Mexican Parrot. W. B. Wherry, Cincinnati.—p. 293.
*Leptothrix on Conjunctiva and in Meibomian Glands. S. R. Gifford, Omaha.—p. 296.
*Rapid Method of Pneumococcus Typing. W. W. Oliver, Brooklyn.—p. 310.
*Inhalation Experiments on Influenza and Pneumonia, and on Importance of Spray-Borne Bacteria in Respiratory Infections. W. B. Wherry and C. T. Butterfield, Cincinnati.—p. 315.
Fate of Killed Nonhemolytic Streptococci Injected into Blood, and Resulting Cellular Changes. K. Nagao, Chicago.—p. 327.
*Occurrence of Hemolytic Streptococci in Stools of Scarlet Fever. W. B. Moody and E. E. Irons, Chicago.—p. 363.
Further Observations on Varieties of Streptococci with Reference to Hemolysis. B. J. Clawson, Grand Forks, N. D.—p. 368.
*Plague-Like Organisms in Wild Rats of São Paulo, Brazil. W. G. Smillie, São Paulo, Brazil.—p. 378.

**Number of Bacteria and Acid Production.**—The results of the investigations made by Anderson and his associates and those obtained by others show that the fermenting capacity of a culture is determined by the number and age of the bacteria present. The rate of acid production in the fermentation of xylose by *Lactobacillus pentoaceticus* is most rapid during the period of maximum growth of the bacteria. A decline in the rate of growth is accompanied by a decrease in acid production although a slow acid formation is noted for many days. In the first stages of growth, the curves of multiplication of bacteria and of acid formation are almost parallel although growth precedes the formation of acid in measurable quantities. The maximum number of bacteria occurs in the early stages of fermentation, usually within forty-eight hours after inoculation, while the maximum acidity is not noted for several days. In a xylose yeast-water medium the bacteria multiply more rapidly and reach a higher number if calcium carbonate is present. In old xylose culture of *Lactobacillus pentoaceticus*, the ratio between lactic and acetic acids may change. This is probably due to a secondary fermentation of the lactic to acetic acid. Apparently, acetic acid is the only volatile acid produced in the fermentation of xylose by *Lactobacillus pentoaceticus*. Direct count and plate count of the total number of bacteria give the same general results.

**Leprosy-Like Disease of Lung of Parrot.**—The lungs of the parrot examined by Wherry contained many scattered grayish tubercle-like nodules about 0.5 to 1 mm. in diameter. Smears stained by the tubercle method showed numerous acid-fast bacilli which resembled the tubercle or lepra bacillus. Many of these, however, were short or even coccoid. Sections showed that these tubercles were largely peribronchial. They were composed of epithelioid cells with vesicular nuclei. Some cells contained two nuclei. In the sections stained with hematoxylin and erythrosin the new growths appeared to be purely epithelial of epitheloid proliferations without any changes in the surrounding tissues and without leukocytic infiltration; nor did they show any connective tissue stroma or capsule. However, the surrounding tissues were greatly congested and in places there was extensive hemorrhage. In sections stained with carbol fuchsin, decolorized with 2 per cent. hydrochloric acid in 95 per cent. alcohol, and then stained with Unna's polychrome methylene blue, the epithelioid cells were seen to be filled with acid-fast bacilli lying at all angles. The picture was very much like that of human or rat leprosy. Cultures were negative.

**Leptothrix on Conjunctiva.**—A strain of leptothrix was found by Gifford as the only organism in smears and cultures from the conjunctival sac in a case of recurrent conjunctivitis. It was pathogenic for guinea-pigs and showed definite spore formation. A leptothrix was isolated from a case of chronic meibomitis. It showed definite spore formation, but was nonpathogenic for guinea-pigs, serologically distinct from the first strain, and presented cultural differences from it. What is probably a leptothrix was found in smears from a second case of chronic meibomitis. It apparently showed true spores. The group of leptothrices includes at least two, and probably more, distinct species. The literature is reviewed.

**Rapid Method of Pneumococcus Typing.**—The method described by Oliver is a rapid precipitin test of filtered pneumonic sputum, to which bile previously has been added. By this method a "typing" of the pneumococcus may be effected within half an hour after receipt of the sputum.

**Sputum Sprays and Experimental Pneumonia.**—When white mice, white rats and guinea-pigs were exposed to finely divided influenza sputum sprays by Wherry and Butterfield some died of a primary pneumonia, others of a general infection due to a strain of *B. enteritidis* (type M 5). As primary pneumonia could not be produced in mice when M 5 was

inoculated through the buccal or gastro-intestinal mucosa, the conjunctiva, subcutis or peritoneal cavity, but only when sprayed, it seems to the authors likely that something in the sputum sprays produced a change in the pulmonary tissues favoring such secondary localization.

**Hemolytic Streptococci in Scarlet Fever.**—Typical hemolytic streptococci were isolated by Moody and Irons from the feces of 30 per cent. of eighty-five scarlet fever patients. They occurred in the feces at irregular intervals wtih no definite relation to the age of the patient, character of the stool, duration or intensity of the illness. The number of colonies was small in comparison to the number of other organisms, such a *B. coli,* staphylococci, and green-producing streptococci, but when it is considered that only a small part of one loopful of the stool was studied it seems probable that hemolytic streptococci occur.

**Plaguelike Bacilli.**—Three strains of bacilli were isolated by Smillie from normal appearing rats of São Paulo, at a time when the city was in close proximity to and in constant danger from bubonic plague. It was proved by cultural methods and animal inoculation that these organisms were not plague but belonged to the closely allied pasteurellosis group. *B. enteritidis,* which may resemble *B. pestis* somewhat in morphologic and staining characteristics, was isolated from the kidneys of a normal appearing rat.

## Journal of Orthopaedic Surgery, Lincoln, Neb.

October, 1920, **2**, No. 10

Abduction Method Considered as Standard Routine in Treatment of Fracture of Neck of Femur. R. Whitman, New York.—p. 547.
*Causes of Success and Failure in Tendon Transplantation. N. Dunn. —p. 554.
*Operation for Relief of Congenital Equinovarus Deformity. F. R. Ober, Boston.—p. 558.
Scoliosis. H. A. Pingree, Portland, Me.—p. 566.

**Causes of Success and Failure in Tendon Transplantation.**—Dunn is convinced that success or failure of tendon transplantation has depended mainly on one factor—the possibility of reeducation of the transplanted tendon to perform its new function. Other factors are that the transplanted tendon should run a direct course to its new insertion; it should be sutured under moderate tension, and should not be subjected to strain until union with the receiving tendon or bone is assured. Perfect asepsis is also necessary. Dunn suggests that two axioms in tendon transplantation should be: (1) That a single tendon or part of a tendon should only be used to replace one of its own group, i. e., one normally in action with it; (2) that a group of muscles but not an individual member of the group may be used to replace muscles not normally in action with it.

**Operation to Relieve Equinovarus.**—The operation employed by Ober is based on the pathologic anatomy of the structures chiefly concerned in holding the foot in a position of equinovarus. It is not employed in children under 2 years of age as it is very difficult to remove the periosteal ligamentous flap from the tibia and calcaneus owing to the fact that their bones are almost wholly cartilaginous in structure and consequently are easily injured in attempts to denude them of periosteum and ligaments. The operation is described fully.

## Medical Record, New York

Oct. 23, 1920, **98**, No. 17

Mammalogy: Anatomic and Taxonomic Consideration of Group to which Man Belongs. R. W. Shufeldt, Washington, D. C.—p. 673.
Early Signs of Disease of Nervous System. T. A. Williams, Washington, D. C.—p. 684.
Radium in Uterine Hemorrhage. D. C. Moriarta, Saratoga, N. Y.—p. 684.
Skin Grafting. H. A. Baldwin, Columbus, Ohio.—p. 686.
Postoperative Recurrences of Anorectal Fistula; Causes and Prevention. A. A. Landsman, New York.—p. 688.

Oct. 30, 1920, **98**, No. 18

New and Successful Diagnosis and Treatment of Cancer. W. F. Koch, Detroit, Mich.—p. 715.
Outlet Pelvimetry. G. H. Pierce, New York.—p. 723.
*Traumatic Genu Recurvatum in Adult. S. Kleinberg, New York.—p. 726.
Recovery of a Needle from Tendon of Flexor Longus Hallucis. W. H. Barber, New York.—p. 728.
*Spinal Sign in Gastric Crises of Tabes. W. Browning, Brooklyn, N. Y. —p. 728.
Acquired Syphilis in Aged. B. P. Thom, New York.—p. 730.
Simple Everyday Science About Yeast. L. K. Hirshberg, New York. —p. 732.
Allergies in Chronic Diseases. J. B. Luckie, Pasadena, Calif.—p. 733.

**Traumatic Genu Recurvatum.**—As the result of wearing a rigid brace for some lesion in the hip, when the knee was permitted to sag backward, a recurvature was established. The deformity consisted of a knock-knee condition and hyperextension to about 20 degrees beyond the straight line. The knee was immobile. The roentgen ray showed that outward subluxation of the tibia produced the knock-knee hyperextension of the knee and fusion of the femur and tibia through a curved bar of bone extending between and uniting the internal condyle of the femur and the inner aspect of the tuberosity of the tibia. The articular surfaces of the femoral condyles and the tuberosity of the tibia were apparently undisturbed. The osseous bridge uniting the femur and tibia was removed and then the joint could be moved through an arc of about 30 degrees. The limb was manipulated and the deformity partly corrected. The final result was that the leg became quite straight and eventually a fibrous ankylosis occurred.

**Spinal Sign in Gastric Crisis of Tabes.**—The sign found by Browning consists of a point or small area of tenderness just to the left of the spinal column, corresponding to the fifth dorsal interspace or one at about that level. It is always to be found on the same side as the stomach. It may extend to more than one space, though usually most marked at a definite level. It rarely involves the other side, and then only in minor degree. An evident wince on the part of the patient or an expression of pain shows when the tender spot is reached.

## West Virginia Medical Journal, Huntington

October, 1920, **15**, No. 4

West Virginia's Need of Better Vital Statistics Law. C. F. Raver, Charleston.—p. 121.
Prostatic Infection; Treatment. E. O. Smith, Cincinnati.—p. 127.
Serology of Syphilis in Relation to Pathology. F. C. Hodges, Huntington.—p. 130.
Mercurochrome 220: Its Practical Application in General Practice with Special Reference to Treatment of Empyema; Report of Cases. C. M. Bray, Morgantown.—p. 134.
Practical Biologic Prophylaxis. W. E. Vest.—p. 136.
Addison's Disease; Report of Case. E. F. Peters, Switchback.—p. 141.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Surgery, London

July, 1920, **8**, No. 29

Science and Surgery. J. Bland-Sutton.—p. 6.
*Duodenal Diverticula. E. I. Spriggs.—p. 18.
*Ritual of Surgical Operation. B. G. A. Moynihan.—p. 27.
*Rôle of Radium in Treatment of Malignant Disease of Bladder and Male Genital Organs. C. Morson.—p. 36.
*Acute Encysted Hydrocele of Spermatic Cord. R. Johnson.—p. 40.
Treatment of Inoperable Cancer with Selenium. E. Watson-Williams. —p. 50.
*Occurrence of Massive Cholesterin Deposits in Breast in Cases of Long Standing Mastitis. M. J. Stewart and J. A. C. Forsyth.—p. 59.
*Trap Door Operation for Empyema. A. N. McGregor.—p. 64.
Treatment of Tumors by Radium and Roentgen Rays. N. S. Finzi. —p. 68.
*Lymphatics of Tongue: Particular Reference to Removal of Glands in Cancer of Tongue. J. K. Jamieson and J. F. Dobson.—p. 80.
*Technic of Reamputation. A. H. Todd.—p. 88.
Effects of Gunshot Injury on Heart and Blood Vessels. G. H. Makins.—p. 107.
Flail Shoulder. F. F. A. Ulrich.—p. 133.
Transposition of Viscera Associated with Gall Stones and Hour-Glass Stomach. R. E. Kelly.—p. 137.
*Section of an Abnormal Ulnar Nerve in Forearm. A. K. Henry.—p. 139.
Sloughing Fibroid of Uterus which Ruptured Through Fundus into Peritoneal Cavity, Causing General Peritonitis: Hysterectomy. H. Drummond.—p. 141.
Division of Posterior Spinal Roots for Relief of Pain Due to Complete Disruption of Brachial Plexus. H. G. Barling.—p. 142.

**Diverticulum of Duodenum.**—Ten cases of single diverticulum of the duodenum, discovered in the course of more than 1,000 roentgen-ray examinations of the alimentary tract, are reported by Spriggs. Five were in the second and five in the third part of the duodenum. One case was observed at operation. In two of the cases the duodenum had been examined by a surgeon, but the diverticulum had not been detected.

In nine of these cases the symptoms were not connected with the diverticula. In one case, still under observation, this point is doubtful. The literature shows that such diverticula have, though but rarely, been the cause of disease.

**Ritual of Surgical Operation.**—Moynihan maintains that every operation in surgery is an experiment in bacteriology. The success of the experiment in respect of the salvation of the patient, the quality of healing in the wound, the amount of local or constitutional reaction, the discomforts during the days following operation, and the nature and severity of any possible sequels, depend not only on the skill but also on the care exercised by the surgeon in the ritual of the operation. The "ritualist" must not be a man unduly concerned with fixed forms and ceremonies, with carrying out the rigidly prescribed ordinances of the surgical sect to which he owes allegiance; but a man who, while observing with unfaltering loyalty those practices which experience and experiment have together imposed on him, refuses to be merely a mimic bound by custom and routine. He must set endeavor in continual motion, and seek always and earnestly for simpler methods and a better way. In the craft of surgery the master word is simplicity. The ritual of an operation commences before, sometimes long before, the incision is made, and may continue for a long period after the wound is healed. In the transition of a patient from ill health to sound health the operation itself is only one—though it may be the most important—of all the factors concerned in this fortunate event. All the details connected with the performance of an operation are discussed by Moynihan.

**Radium Therapy of Tumors.**—With the experience gained in recent years of the effect of radium on malignant disease, Morson says there is one outstanding fact—radium is local in its action. The removal of a growth by radium does not ensure an immunity from recurrence in other parts of the body. The experiments on mice, which showed that the cancer cell when irradiated with a sublethal dose had the power to confer immunity against the same strain of tumor, have as yet failed when put to the test in the case of human malignant disease. It is the type of growth which rarely gives rise to metastases that is most successfully treated by the rays of radium. Therefore, in cases of malignant disease of the bladder and prostate a good result may be expected, provided always that the remedy be applied with meticulous care, and with an exact knowledge of the effect of irradiation on the normal tissues of the body. Three cases of the acute form of encysted hydrocele of the spermatic cord are reported.

**Encysted Hydrocele of Spermatic Cord.**—Three cases of the acute form of encysted hydrocele of the spermatic cord are reported by Johnson. The mode of onset, the character of the swelling, and the presence of nausea or actual vomiting, combine to make the resemblance to strangulated hernia very striking. Johnson suggests that a sudden pressure on the part produced by a forcible muscular effort is sufficient to cause an effusion of fluid into the already present unobliterated portion of the funicular process.

**Cholesterin Deposits in Breast in Chronic Mastitis.**—The two cases described by Stewart and Forsyth are instances of long-standing subacute mastitis in which, owing to retention of necrotic débris, inflammatory exudate, glandular secretion, and effused blood over long periods, very extensive deposition of crystalline cholesterin had taken place. The histologic appearances in paraffin sections are most striking and characteristic, consisting of an enormous number of clefts, lying parallel to one another in large groups, or arranged in a pennate fashion. The crystals occupying these clefts have the optical and microchemical characteristics of cholesterin. The intervening stroma contains foreign body giant cells in large numbers, and many "foamy" endothelial cells, especially around the periphery of the main deposits. The foamy-cell areas contain in addition a large amount of acicular crystalline material which melts at temperatures well below 100 C., and which forms anisotropic globules on cooling (i. e., compounds or combinations of cholesterin and fatty acids).

**Trap Door Operation for Empyema.**—This operation is devised to provide an outlet for the pus of empyema without the use of a tube, by means of a positive pump action which insures that the pleural cavity is emptied in a very short space of time and the lung brought down to normal position. The object of the procedure advocated by McGregor is to provide a flap, rectangular in shape, composed of the whole thickness of the chest wall down to the level of the ribs, and to provide an opening by resection of part of a rib opposite the center of that flap, so that the pus leaves the chest cavity under the flap during expiration, and the movement of inspiration sucks the flap shut.

**Lymphatics of Tongue and Cancer.**—In early growths of the lateral border of the tongue, Jamieson and Dobson state a unilateral complete block dissection of the neck with intrabuccal excision of half the tongue, at one sitting, is indicated. This operation is quite satisfactory and not unduly dangerous. If, however, the patient is not in good condition, the intrabuccal operation may be done first and the gland operation at a later date. In quite early small growths of the tip and fraenum, or on the dorsum of the tongue, a unilateral block dissection with intrabuccal excision of the tongue at one sitting, followed by a block dissection of the other side of the neck at a later date, is required. The internal jugular vein should be preserved during the second block dissection. In more advanced growths of the lateral border, tip and frenum, and dorsum, and in all growths at the back of the tongue, an extrabuccal operation (Syme, or some modification) is essential, as is also a bilateral block dissection of the neck, preserving the internal jugular vein on one side. This is impossible at one sitting, highly dangerous even at two, and only to be done with any degree of safety at three sittings. It is difficult to induce patients to submit to a three-stage operation. In cases where the growth has spread from the tongue to the floor of the mouth, jaw, or tonsil, nothing less than a bilateral block dissection of the lymphatic glands will be "adequate," whatever be the nature of the operation on the primary disease.

**Technic of Reamputation.**—The best and easiest method of reamputation according to Todd consists in the excision of a conical piece of the end of the stump en bloc, without any dissection whatsoever. The cut passes through tissues which are practically normal, and heals by primary intention.

**Abnormal Ulnar Nerve.**—An example of the presence of a communicating branch in the forearm between the median and ulnar nerves is mentioned by Henry. The surgical importance of the abnormality is emphasized.

## Edinburgh Medical Journal

October, 1920, **25**, No. 4

Two Medical Humorists. C. E. Doughlas.—p. 209.
Functional Mental Illnesses. R. G. Rows.—p. 228.
Interdependence of Sympathetic and Central Nervous Systems in Relation to Psychoneuroses. D. Orr.—p. 243.

## Journal of Laryngology, Rhinology, and Otology, London

October, 1920, **35**, No. 10

Method of Lateral Pharyngotomy for Exposure of Large Growths in Epilaryngeal Region. W. Trotter.—p. 289.
Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 296.

## Lancet, London

Oct. 16, 1920, **2**, No. 5068

Medical Problems: Then and Now. W. Hale-White.—p. 775.
*Extrapleural Thoracoplasty in Treatment of Pulmonary Tuberculosis. P. Bull.—p. 778.
*Sugar in Blood: Microchemical Method of Estimation. R. L. M. Wallis and C. D. Gallagher.—p. 784.
*Relapsing Fever. W. K. Calwell.—p. 785.
*Pellagra and Pellagra Psychosis. R. S. Miller and A. C. Ismail.—p. 788.
Operative Treatment of Congenital Deformities of Lower Urinary Tract. R. Thompson.—p. 790.
Six Cases of Lethargic Encephalitis. R. S. McClelland and A. E. Keown.—p. 793.
Case of Hysterical Paralysis in Soldier. D. Forsyth.—p. 794.
*Case of Paratyphoid Infection. E. Wordley.—p. 794.

**Extrapleural Thoracoplasty in Tuberculosis.**—Bull has performed thirty-seven extrapleural thoracoplastic operations in pulmonary tuberculosis. The immediate mortality was about 10 per cent. Three deaths were due to infection. Seven patients died subsequently of their tuberculosis, one nearly four years after the operation. Twenty-five patients still

live. Of these, fifteen are considered as cured; they are entirely, or practically, fit for work, always afebrile, and tubercle bacilli can no longer be demonstrated in the sputum. They have no daily cough, but some of them are more liable to temporary colds than other people. Ten patients live, with symptoms of their pulmonary tuberculosis. Of the eighteen cases which were not so satisfactory, the operation was incomplete in three; in two Bull lacked sufficient experience, and in the third the patient's general condition before the operation was so poor that he could not bear it, and it, therefore, had to be interrupted and left incomplete. Bull contends that in unilateral, or mainly unilateral pulmonary tuberculosis, which is not cured by rational treatment (including pneumothorax), good results can be achieved by means of extrapleural thoracoplasty. The operation should only be performed after conference with the physician treating the patient, who must have had an opportunity, by observation during a considerable period, of forming a thorough opinion of the prognosis in the case concerned. Resection of the ribs should be carried out under local anesthesia through a paravertebral incision, so that the posterior part of the ribs from the eleventh, or, in any case, from the tenth to the first, inclusive, can be removed. If a cavity remains, it can be brought to collapse by means of intrathoracic transplantation of fat.

**Estimating Blood Sugar.**—Gallagher describes a microchemical method of estimation, based on the method of Folin and Wu, which, he says, provides an accurate, reliable and rapid method of estimation of blood sugar. It enables an analysis of the blood to be made with very little inconvenience to the patient, as also the determination of the glucose tolerance, and yields results of importance both as regards diagnosis, prognosis and treatment. Details of technic are given.

**Treatment of Relapsing Fever.**—An account of a series of 125 cases, with special reference to the Palestine type is given by Calwell. The treatment instituted consisted in the use of antiparasitic measures, salicylates and acetyl salicylic acid for relief of the pain, morphin for severe pain or delirium, cold sponging, diet and arsphenamin (kharsivan).

**Pellagra Psychoses.**—A study of 757 insane Egyptian pellagrins was made by Miller and Ismail. The various groups into which these cases were classified on admission were: acute confusional insanity (amentia), 320; mania, acute, recurrent, febrile, 115; melancholia, simple and recurrent, 113; dementia, 103; imbecility, 28; adolescent insanity, 26; drug insanity, 26; epileptic insanity, 23; general paralysis of the insane, 2; returned not insane, 1. Thus 320 cases, or 42 per cent., fall directly under the heading of amentia, the typical psychosis of the earlier stages. The subsequent history of these patients was: died, 240 (32 per cent.); discharged, 359 (47 per cent.); remaining, 158 (21 per cent.).

**Parathyphoid Infection.**—The two points of interest in Wordley's case are, apart from the difficulty of diagnosis, the unusual range of agglutination in a paratyphoid infection, and the fact that joint and bone complications in such infections are rare. With regard to the agglutination results, to attain a titer of $\frac{100,000}{7,000}$ in three weeks is most unusual in any case of infection of the enteric group.

## Medical Journal of Australia, Sidney

Aug. 28, 1920, **2**, No. 9

Montessori's Contribution to Education. R. W. Stevens.—p. 189.
Manifestations of Rickets in School Children. H. Sutton.—p. 190.
Mental Deficiency. C. P. Stewart.—p. 193.
Treatment of Anthrax. R. J. Millard.—p. 194.
Fleeting Amaurosis in Children. J. W. Barrett.—p. 196.

Sept. 4, 1920, **2**, No. 10

Australasian Medical Congress, Brisbane, 1920. W. F. Taylor.—p. 209.
Naval and Military Medicine and Surgery. R. J. Millard.—p. 214.
Public Health and State Medicine. J. H. L. Cumpston.—p. 218.
*Report of Case of Hereditary Polydactylism. L. Crivelli.—p. 223.

**Hereditary Polydactylism.**—An interesting case of hereditary polydactylism, extending through five generations is cited by Crivelli. A woman has had three children. One girl, had an extra digit on one side only; one boy was without any extra digit; and one girl had the double deformity. The woman herself had the double deformity and she had three sisters who had it, three brothers without it and one brother with an extra digit on one foot. One of the sisters has a boy with the deformity. One brother has one or two children without it. The father of the woman had the deformity and so did her grandfather and her great-grandfather. She does not know of any other members of the family being affected.

Sept. 11, 1920, **2**, No. 11

Obstetrics and Gynecology, Australasian Medical Congress, 1920. F. Barrington.—p. 235.
Diseases of Children, Australasian Medical Congress, 1920. Community and Child. W. F. Litchfield.—p. 240.
Dermatology, Radiology and Medical Electricity, Australasian Medical Congress. E. H. Molesworth.—p. 242.
Rodent Ulcer of Arm. W. McMurray.—p. 244.
*Unusual Case of Intestinal Obstruction. J. Macarthur.—p. 244.

Sept. 18, 1920, **2**, No. 12

Congress Number.

**Volvulus of Colon and Obstruction of Small Intestine.**—A girl, aged 14 years, had severe abdominal pain and vomiting. The abdomen was distended. The distension was most marked in the center, the flanks being flat. The abdomen moved with respiration and, in the absence of pain, there was no muscular rigidity. Pains, much resembling labor pains, kept recurring at irregular intervals. Occasional peristaltic movements could be felt, but as each pain came on the abdominal muscles became taut and the patient doubled up. In the hypogastrium an indefinite doughy swelling could at intervals be felt. There was no other area of increased resistance. The pre-operative diagnosis made in this case was acute obstruction due to internal hernia, a Meckel's diverticulum, or even an intussusception, though the latter was considered unlikely. What actually occurred was the result of an abnormally movable ileocecal segment. The cecum and colon had a complete and unusually long mesentery. The twist had incarcerated the upper half of the small intestine. Eventually tightening itself and passing along the colon, it became locked at the fixed end of the small intestine, when symptoms of high obstruction occurred. The actual diagnosis was volvulus of the colon, with an associated obstruction of the small intestine.

## National Medical Journal of China, Shanghai

June, 1920, **6**, No. 2

Latest Phase of Narcotic Problem. Wu Lien Teh.—p. 65.
Control of Hookworm Disease at Pinghsiang Colliery, Ngan Yuen, Kiangsi. F. C. Yen.—p. 71.
Bubonic Plague in Shansi. P. T. Watson.—p. 93.
Preparation and Standardization of Hypochlorite Solutions. A. J. D. Britland.—p. 97.
Toxic Goiter in Orientals. W. B. Russell.—p. 101.
Practical Considerations in Refraction. T. M. Li.—p. 108.
Iso-Agglutination Tests on One Thousand Chinese Bloods. J. H. Liu and H. S. Wang.—p. 118.
Medical Progress in China Since the Republic. W. Lien Teh.—p. 120.

## Practitioner, London

October, 1920, **105**, No. 4

Prevention of Diabetes Mellitus. R. T. Williamson.—p. 233.
*Complete Recovery from Diabetes Insipidus. P. J. Cammidge.—p. 244.
Practical Application of Vaccine Prophylaxis and Treatment. E. C. Lowe.—p. 248.
Recent Work on Children's Diseases. H. Thursfield.—p. 266.
Heterophoria as Cause of Headache. R. T. Thorne.—p. 272.
Three Years Radiography at Base in France. W. Cotton.—p. 280.
Differential Diagnosis Between Duodenal Ulcer, Appendicitis and Disease of Gallbladder. J. C. Barker.—p. 292.
Spinal Therapeutics. J. R. Keith.—p. 298.
Case of Pemphigus Neonatorum. R. Cox.—p. 301.

**Recovery from Diabetes Insipidus.**—In Cammidge's case the symptoms rapidly subsided after spinal puncture. The patient is now in excellent health, and has been without any relapse for six years after the operation. It is suggested that in this case the symptoms of diabetes insipidus, from which the patient suffered, were the result of parasyphilitic changes at the base of the brain, which interfered with the passage of the secretion of the hypophysis into the cerebrospinal fluid. Withdrawal of some of the fluid, by the sudden change of pressure produced within the cerebrospinal canal, most likely broke down adhesions and opened a channel for its normal passage again.

## South African Medical Record, Cape Town

Sept. 11, 1920, **18**, No. 17

Congenital Absence of Lower End of Ulna. E. O. Ashe.—p. 324.
Use of Nitrous Oxid and Oxygen, with Rebreathing, as General Surgical Anesthetic. G. W. B. Daniell.—p. 324.

## Tubercle, London

October, 1920, **2**, No. 1

Child Tubercle According to Much. W. B. Christopherson.—p. 1.
*Viability of Acid-Fast Bacilli. S. R. Gloyne.—p. 12.

**Cultures of Acid Fast Bacilli Alive After Six Years.**—In July, 1914, Gloyne placed a batch of stock laboratory cultures of tubercle bacillus in the ice chest. War broke out shortly afterward, and these cultures were left untouched for nearly six years. During most of the time the chest was not replenished with ice. The culture tubes were capped with rubber. In the spring of this year Gloyne examined these cultures again. One stock culture of tubercle bacillus on Dorset's egg medium survived untouched for nearly six years, while two glycerin agar cultures had died out. The living culture was of feeble virulence, and owing to this fact it was not possible definitely to decide as to the type; but the lesions produced in a rabbit exclude the human type. A culture of *B. Phlei* remained alive for four years and was still strongly acid-fast, while a culture of Rabinowitch's bacillus of the same age was found to have died out, and to have lost to a great extent its acid-fast properties. In each case the Dorset's egg medium culture was the living one, and the dead agar cultures were characterized by marked pleomorphism and considerable loss of acid-fast properties.

## Archives Médicales Belges, Liége

May, 1920, **73**, No. 5

Hysteria and Epilepsy from Military Standpoint. J. Lefèvre.—p. 371.
Manifestations of Diphtheria in Nose and Ears. Lambert.—p. 382.
The Ehlers-Milian Treatment of Scabies. Daubit.—p. 393.
Present Status of Treatment of Goiters. J. Voncken.—p. 398.

## Bulletins de la Société Médicale des Hôpitaux, Paris

July 16, 1920, **44**, No. 26

*Tetany of Vegetative System. D. Danielopolu.—p. 1017.
*Auscultation During Rubbing. O. Crouzon and Béhague.—p. 1025.
Chorea Following Lethargic Encephalitis. Souques and Lacomme.—p. 1026.
*Lesions in Locus Niger in Paralysis Agitans. Souques and Trétiakoff.—p. 1027.
Contagion of Lethargic Encephalitis. A. Netter.—p. 1030.
*Reexamination Ten Years After Suture of the Heart. Proust.—p. 1035.
Myoclonus in Lethargic Encephalitis. F. Bosc.—p. 1042.

**Hemivagotony.**—In the case reported by Danielopolu the young man had had several attacks of tetany during a year of chronic cystitis and pyelonephritis, and lately attacks of profuse sweating restricted exactly to the left side for from thirty to sixty minutes, and then the right side sweated also. These attacks of hemivagotony seemed to be a kind of abortive tetany, without contracture or pain, merely phenomena on the part of the vegetative nervous system. The hemivagotony persisted to a slight degree between attacks, the maximal blood pressure being considerably higher on the right side and showing a higher increase under the influence of epinephrin by the vein. The oculocardiac reflex also indicated left hyperexcitability. Periods occurred during which the vagotony seemed general and then the preponderance of the left side returned.

**Auscultation During Friction of Chest Wall.**—Crouzon and Béhague report experiences which confirm recent assertions to the effect that auscultation of friction sounds enables one to gage the resonance of the subjacent lung.

**The Locus Niger in Shaking Palsy.**—Souques and Trétiakoff state that they found lesions in the locus niger in three cadavers after death in paralysis agitans. The globus pallidus seemed comparatively normal.

**Remote Results After Suture of Heart.**—Proust removed a bullet from the pericardium of a boy of 13, and now reports the present findings ten years later. The young man passed efficiently through the war in the artillery service, and he now plays football without getting out of breath and is in better health than ever. Auscultation is normal, and radioscopy shows the heart normal, the left ventricle a little overround, perhaps. In the discussion that followed Proust's report, Josué described the remote findings in ten cases after operations on the heart for war wounds. In four the electrocardiogram was normal, including three in which the left ventricle had been the seat of the lesion. In four others the left ventricle seemed to contract predominantly, and in three of these the right ventricle had been the seat of the lesion.

## Gynécologie et Obstétrique, Paris

1920, **1**, No. 6

Cancer and Marriage. H. T. Deelman.—p. 493.
*Ectasia of Aorta in the Pregnant. Cleisz and Powilewicz.—p. 511.
*Diagnostic Pinching of Abdominal Cyst. C. Daniel.—p. 523.
*Obstetric Fracture of the Femur. J. Le Grand.—p. 526.

**Ectasia of the Arch of the Aorta in the Pregnant.**—Cleisz and Powilewicz report the fifth case on record of this complication of pregnancy. If allowed to draw conclusions from such a small number, the prognosis seems favorable if the dilatation of the aorta is simple ectasia. Otherwise the prognosis depends on whether there is compensation of the valvular or other lesion responsible for the dilatation. In their personal case, a rheumatismal panaortitis involved both the valves and ascending aorta. The valvular insufficiency had entailed hypertrophy of the heart with spindle-shaped enlargement of the aorta. About twenty cases of this combination have been published, actual aneurysm formation being the exception.

**Diagnostic Pinching of an Abdominal Cyst.**—Daniel holds the tumor firm with the left hand while with the right he takes up a fold in the abdominal wall, thus pinching the cyst, the sensation differentiating it from an effusion.

**Obstetric Fracture of Femur.**—Le Grand extols the advantages of extension of both legs stretched apart at right angles to the body, and fastened with elastic traction to a straight board extending beyond the feet. The infant can thus be handled and cleaned with ease, without interfering with the ideal healing of the fractures. The extension is done with adhesive plaster, the rubber band passing underneath the board. The extension is not needed for more than twenty-five days. The child does not seem to suffer from it, and after its removal the legs soon resume the normal position, while roentgenoscopy confirms the ideal healing.

1920, **2**, No. 1

*Tubal-Ovarian Tuberculosis. H. Hartmann and others.—p. 3.
*Dystocia with Double Uterus. M. Potocki.—p. 22.
*Postoperative Fistula into the Colon. V. Pauchet.—p. 32.

**Tuberculosis of the Adnexa.**—Hartmann, Bergeret and Remilly relate that 3 women whose tuberculous internal genitals had been removed are in perfect health now from two to three and a half years after the operation. In 4 others only one tube and one ovary had been removed, and one of the women is in good health a year later; the 3 others have all increased in weight but all have still a small fistula, two, eight and thirteen years after the unilateral castration. The fistula secretes occasionally in one, and, in another, blood oozes from the fistula during menstruation. Secondary tuberculosis was responsible for the death of 3 others. These 10 patients are the only ones that have been followed to date of their total 28 cases of tubal or ovarian tuberculosis, with 3 deaths soon after the operation. In 3 of the women the genital tuberculosis developed from a few weeks to two months after childbirth or miscarriage. In 27 of the cases the peritoneum or adjacent organs were involved, and in 20 cases the lesions were bilateral. The genitals were involved in only one of their 55 cases of nephrectomy for tuberculosis in women, while there were 3 cases of tuberculous epididymitis in 19 nephrectomies in males.

**Dystocia from Retroflexion of Nongravid Half of Double Uterus.**—Potocki does not know of any other instance like the one he describes in which cesarean section had to be done because the nongravid cornu had prolapsed into the pelvic cavity and become hypertrophied. But he cites four cases of dystocia from retroversion of the empty cornu, with final mechanical delivery by the natural routes.

**Postoperative Fistula Into the Colon.**—Pauchet warns not to attempt operative correction of a fistula into the colon

(from injury of the colon during a gynecologic operation), until three or fourth months have allowed a chance for spontaneous healing, as this occurs in 90 per cent. of the cases. With a large fistula, if an artificial anus above is not followed by spontaneous healing in two or three months, conditions then are much more favorable for correction of the fistula, as he describes with illustrations.

## Journal de Radiologie, Paris

July, 1920, **4**, No. 7

*Combined Radiotherapy in Tuberculosis. A. Gunsett.—p. 289.
*Radiotherapy of Uterine Fibromyomas. IV. A. Béclère.—p. 297.
Radium Treatment of Cancer of Uterine Cervix. T. Nogier.—p. 305.
To Clean Electric Apparatus. Drevon.—p. 307; Belot.—p. 307.

**Combined Radiotherapy of Tuberculosis.**—Gunsett combines the usual roentgen-ray treatment with exposures of the whole body to the sunlight or the mercury vapor quartz lamp, and reports most gratifying results in all forms of tuberculous glandular, bone and joint disease and tuberculous pleuritis and peritonitis, and also in chronic circumscribed forms of pulmonary tuberculosis with a tendency to induration, and in tuberculous lesions of the urinary and genital organs in both sexes. The ultraviolet rays, he says, are a stimulus to repair and regeneration, and the quartz lamp is even better than the natural sunlight in many cases as it does not emit heat rays, and hence there is less danger of congestion and hemoptysis. He determines by a radiograph of the lung the points for exposure front and rear, applying 5 H units at each point, at two sittings, with an interval of two or three days, and then repeating after waiting for three weeks. If a tuberculous glandular lesion does not retrogress after eight exposures at three week intervals, the case must be regarded as refractory; this happened in from 3 to 5 per cent. of his cases. He regards the pigment as the agent transforming the actinic energy, and strives to induce as much pigmentation as possible over the whole body, while carefully avoiding any erythema. The mercury lamp used allows irradiation of the entire body, the patient lying undressed on a table, the eyes protected with black goggles. The first exposure is for three minutes, front and back, the lamp at a meter distance. The intervals are one day, and the exposures are lengthened to thirty minutes as the maximum; after this the lamp is brought closer to the body, but never closer than 50 cm. Then the exposures are prolonged, but he very rarely gave longer than an hour or hour and a half sittings.

**Radiotherapy of Uterine Fibromyomas.**—Béclère's article is a reply to the question asked by the Société de chirurgie whether the treatment of uterine fibromas should be handed over by the surgeons to the radiologists. His conclusion is "Quite legitimately, the treatment of fibromas is now passing from the surgeons to medical radiologists, and from year to year will pass thus in increasing proportions."

## Lyon Chirurgical

May-June, 1920, **17**, No. 3

*Operations for Bladder Tumors. V. Rochet.—p. 293.
*Tardy Separation of Epiphysis. A. Broca and J. Murard.—p. 311.
*Operation for Severed Ureter. G. Tisserand.—p. 320.
Pathologic Physiology of Chronic Intestinal Invagination. P. Masson and R. Leriche.—p. 325.
Fracture of Olecranon. A. Chalier and M. Vergnory.—p. 344.
*Nerve Grafts. Jalifier.—p. 351.
Antigonococcus Serum in Arthritis. Langeron and Bocca.—p. 362.

**Partial Cystectomy for Tumors.**—Rochet reviews the general rules for operations on the bladder under various conditions, and adds that if the partial operation is more mutilating than anticipated, it is better to conclude with total cystectomy.

**Tardy Separation of the Epiphysis.**—Broca and Murard refer to separation of the radial or tibial epiphysis in young men, and give illustrated descriptions of one case of the latter and six of the former, in young men from 19 to 22 years old. In the radial cases the accident occurred from falling on the hand or while cranking a motor. In one in this latter group radiocarpal dislocation had been diagnosed and treatment applied on this basis with prompt recovery of function, but a complete return of the disturbances seven months later. It is practically impossible to distinguish the separation of the epiphysis from a simple fracture without radiography, but certain signs they describe may be useful aids.

**Simplified Reconstruction of the Ureter.**—In Tisserand's two cases one ureter had been accidentally severed during a complicated gynecologic or obstetric operation, and he restored its continuity by passing a ureter catheter into the bladder and inflating the bladder. Then the catheter was drawn up with forceps through a hole made for it in the bladder wall. The tip was cut off and the catheter was worked into the proximal stump of the ureter and sutured to it with fine catgut. The catheter was then drawn back into the bladder until the proximal stump projected for 1 cm. This stump was then sutured to the bladder wall. The retention catheter was removed the fourth day, and the twelfth day the ureter catheter was pulled out. This simple ureterocystoneostomy proved successful in both cases.

**Nerve Grafting.**—Jalifier applied Nageotte's method of heterografts in seventeen cases of old injury of nerves. The best results were obtained with the ulnar nerve; in two cases the implant was 5 cm. long. The failures were with the sciatic, median and in one case with the ulnar nerve. The interval since has been less than a year but regeneration is certain in three cases and probable in four others. The nerves grafted were from calf embryos, and the graft was separated from the old bed by suturing the latter to exclude it, leaving the graft embedded in intact muscle.

## Lyon Médical

Aug. 25, 1920, **129**, No. 16

*Secondary Purulent Pleurisy. F. Leclerc.—p. 693.
*Parabronchitic Pleural Effusions. D. Petzétakis.—p. 696. Conc'n in No. 17, p. 746.
Abortive Lethargic Encephalitis. L. Genet.—p. 721.

Sept. 10, 1920, **129**, No. 17

Present Status of Radium Therapy. M. Durand.—p. 731.
Necessity for Urethroscopy in Chronic Urethritis. L. Phélip.—p. 763.

**Purulent Pleurisy Accompanying Acute Infections of Pleura or Lung.**—Leclerc refers to cases in which after defervescence the fever and the sharp pain in the side return and persist. There may be a cough and it may be painful, and the heart may be displaced. Exploratory puncture may have to be repeated again and again until the pus is located, and if grave infectious phenomena keep up the surgeon must be summoned without delay.

**Parabronchitic Effusion.**—Petzétakis found an effusion in 75 per cent. of fifty-four cases of ordinary acute bronchitis. Usually the amount of the effusion is so small that it diffuses by capillary attraction instead of settling down by gravity, but there may be 5 c.c. or even up to 20 c.c. The effusion is usually readily absorbed, and radioscopy is negative, as also cultivation of the fluid, as a rule, and the general health does not seem to be impaired. These reactions on the part of the pleura are common, and are liable to be mistaken for tuberculosis, particularly as the aspect of the fluid may be misleading.

## Paris Médical

Sept. 4, 1920, **10**, No. 36

*Ophthalmology in 1920. F. Terrien.—p. 165.
Neutralization in Strabismus. A. Cantonnet.—p. 171.
*Retinal Complications of Diabetes. C. Coutela.—p. 173.
*Otorhinolaryngology in 1920. L. Dufourmentel.—p. 176.
*Treatment of Ranula. F. Bonnet-Roy.—p. 184.
Technic and Indications for Biopsy of the Larynx. G. Portmann.—p. 185.
*Stomatology in 1920. P. Fargin-Fayolle.—p. 188.
Indications and Technic for Blocking Inferior Dental Nerve. J. Bercher.—p. 193.

**Ophthalmology in 1920.**—In this annual review of a year's progress in ophthalmology as it affects general medicine, Terrien emphasizes the importance of microscopy of the living eye, and the research on the pathologic anatomy and pathogenesis of detachment of the retina. Morax has reported two cases of secondary glaucoma following detachment of the retina, in two young persons, and for which syphilis was probably responsible. Terrien induced in rabbits a gonococcus ophthalmia, and then attenuated the process and cured it by injection of 0.3 c.c. of antigonococcus serum into the anterior chamber twenty-four hours after the inoculation.

Exophthalmic goiter has been explained recently by Sajous as the outcome of some toxic action from teeth, tonsils, genital or digestive organs or elsewhere. This toxic action whips up the thyroid to exaggerated functioning, and an excess of thyroid hormone is poured into the circulation, and this in turn deranges the catabolism of tissues, degrading the fats, and especially the lipoids in the nervous system. It is the destruction of these lipoids that entails the striking nervous symptoms of the disease. There is thus a triple intoxication forming a vicious circle, and symptomatic measures, he reiterates, are futile. Ergot and quinin may be useful as vasoconstrictors to combat the excessive catabolism. Thyroidectomy or exposures of the thyroid to the roentgen rays, absolute physical and mental repose, a protein-poor diet, and alkaline and laxative medication may be needed also, beside removal of the primary factor in teeth, tonsil or elsewhere.

**Retinal Complications of Diabetes.** — Coutela insists that the failure in certain cases of operations for cataract must be sought in an underlying and possibly unsuspected diabetes. Lesions in the retina may be the first sign to call attention to the diabetes. He cites Onfray's statement that he found hyperviscosity of the blood in nine out of fifteen diabetic retinitis cases, and hypoviscosity in two. Hypoviscosity with high blood pressure invites retinal hemorrhage. He found the Ambard ureosecretory constant frankly bad in 57 per cent. of the cases, and uremia was thus unexpectedly imminent. Coutela adds that albuminuric retinitis has a more unfavorable prognosis than diabetic retinitis, but the outlook for vision is graver with the latter, and the two are frequently combined.

**Otorhinolaryngology in 1920.**—Dufourmentel reviews the great advances in this specialty during and since the war. Among others cited is Moure's method of continuous aspiration during operations on the nose, throat, etc., and Bar's warning that the external ear may be inoculated from a suppurating skin disease and spread from the ear to deeper organs. Armengaud has found that a rebellious fetid otorrhea may be the warning sign of tubercle bacillus invasion. Portmann advocates scraping out the diseased bone in ethmoid sinusitis, but Dufourmentel protests that, in less experienced hands, acute meningitis frequently develops in consequence. He has reported several such cases in recent years, and has lately encountered another case of this grave complication of surgical intervention on the ethmoid. Intratracheal medication and injection through a tracheal fistula have been studied considerably of late. The tracheofistulization is adapted for medication of grave pulmonary tuberculosis where powerful, continuous and prolonged medicinal action is desired. For cancer of the esophagus, radium has proved its usefulness in relieving pain and permitting eating, although a permanent cure does not seem to have been realized in the numerous attempts in this line, including some in Dufourmentel's own service.

**Ranula.**—Bonnet-Roy evacuates the sublingual cyst, fastens it to the lips of the incision, and cauterizes the walls of the cyst with 5 or 10 per cent. silver nitrate three or four times a week for two weeks, by which time healing is complete.

**Stomatology in 1920.**—Fargin-Fayolle cites a recent thesis to the effect that the teeth of the tuberculous are no better or worse than the teeth of the average of their class, but that when caries does develop it runs a much more rapid and painful course in the tuberculous. He concludes his review of the medical aspect of stomatology by calling attention to Fichot's statement that the oculocardiac reflex is abolished or dissociated by tardy toxic action from local anesthesia, and hence it offers an easy means to differentiate symptoms from this cause.

## Presse Médicale, Paris

Sept. 8, 1920, **28**, No. 64

*Mesenteric-Duodenal Occlusion. H. Hartmann.—p. 625.
Tissue Grafts. J. Nageotte.—p. 626.
*Epilepsy and Hysteria. L. Marchand.—p. 627.

**Duodenal Occlusion and Acute Dilatation of the Stomach.**—Hartmann has found that when acute dilatation of the stomach develops from compression of the duodenum by the mesenteric vessels, some preceding chronic tendency of the kind was apparent. By seeking signs of this chronic tendency we can be forewarned as to the danger of postoperative disturbance from this cause, and cases of acute dilatation of the stomach should be investigated as to a predisposition. The vomiting, collapse and dehydration must be combated by lavage of the stomach and saline infusion, with stimulants for the collapse and, possibly, gavage to start peristalsis in the stomach, but correction of the mechanical obstacle is the main thing. This may require the knee-chest or ventral posture or raising the pelvis. All of this set of measures must be applied at once and simultaneously. The chronic tendency may be corrected by duodenojejunostomy as has been reported by others, and Hartmann also applied this operation with success in one case.

**Epilepsy and Hysteria.**—Marchand has encountered a number of cases with associated epilepsy and hysteria, but maintains that treatment must be addressed to each separately. He reviews the literature on this combination and on simulation of epilepsy by hysterics, a number of communications on the subject having appeared during and since the war.

Sept. 11, 1920, **28**, No. 65

*Present Status of Radiotherapy of Cancer. S. Recasens.—p. 633.
*The Specific Wassermann Reaction. Durupt.—p. 636.
*Camphor and Emetin in Treatment of Hemoptysis. L. Cheinisse.—p. 637.

**Radium and Roentgen-Ray Treatment of Cancer.**—Recasen's experiences were reviewed in THE JOURNAL April 10, 1920, p. 1054.

**Specificity of the Wassermann Reaction.**—Durupt is a former chef de laboratoire at the Paris Faculté de médecine, and his experimental research over more than a year has demonstrated, he announces, that the Wassermann reaction is of a twofold nature. There is a nonspecific physical-chemical reaction and a strictly specific biologic reaction, the two combined forming the usual reaction as we know it. The liver antigen gives about 15 per cent. more positive reactions than other antigens, and he found that when liver antigen and heart antigen were used parallel, the reaction was always more pronounced with the former in case of active syphilis; when the reaction was about the same with both, this was a sign of the lack of the true biologic response, and the test was not specific. When the reaction is positive with the liver alone, and the heart antigen is negative, this may be interpreted as showing that the subject has merely inherited syphilis, or acquired syphilis that is yielding to treatment, or that after a negative phase the syphilis is flaring up again, or that he is a tabetic or that the syphilis is of very long standing. The advantages of using two antigens at least are thus evident.

**Camphor and Emetin in Treatment of Hemoptysis.**—Cheinisse discusses the rather conflicting literature on this subject. Colbert and Bazin have recently emphasized that an injection of 4 cg. of emetin lowers an abnormally high blood pressure and hence tends to arrest hemoptysis, but it has no effect if the blood pressure is within normal range. Zehner has called attention to the difference between hemorrhage from the lungs according as there is congestion or ulceration. With congestion, the blood is scanty, dark colored, and the pulse is small. Small doses of camphor, frequently repeated, correct the circulatory disturbance and mobilize substances favoring coagulation and thus tend to arrest the hemoptysis. With hemoptysis from ulceration, the blood is red and foamy, the pulse normal. Camphor here acts by its vasoconstricting action and hence must be given in large doses. He insists that camphor must be regarded as the sovereign remedy for hemoptysis, but Cheinisse warns that it must be given cautiously and not too long, as the oil vehicle may entail untoward consequences.

## Progrès Médical, Paris

Aug. 21, 1920, **35**, No. 34

Manometer Compressor for the Eyeball. J. Roubinovitch.—p. 367.
Fracture of Forearm. R. Dupont.—p. 367.
Epilepsy and Anxiety. Laignel-Lavastine.—p. 368.
*Acute Suppurative Thyroiditis. J. P. Tourneux.—p. 371.

**Acute Suppurative Thyroiditis.**—Tourneux describes a case in a young man in which an abscess developed in the sound thyroid during typhoid fever and another in the perineum; both healed at once after incision. In a second case, gangrenous thyroiditis developed in a man of 35 with the thyroid previously sound. Both pneumococci and streptococci were cultivated from the lesion which had developed during convalescence from influenza.

## Revue de Chirurgie, Paris

1920, **39**, No. 5

Treatment of War Fractures. A. Broca.—p. 321.
*Treatment of Pott's Disease. J. Calvé and M. Galland.—p. 340.
Technic for Amputations. P. Descomps.—p. 379.
*Surgical Anatomy of Nerves of the Thyroid. H. Alamartine.—p. 403.

**Operative Treatment of Caries of Vertebrae.**—Calvé and Galland write from their extensive experience at the Berck sanatorium to explain how Pott's disease is a kind of fracture of the spine; the caries of the body of the vertebra divides the spine into two segments, balancing on the diseased articulation. By supporting and resting the spine and averting all causes of aggravation, the lesion heals completely in children, in from three to five years, with the minimum of deformity. In adults, partial resumption of function is justified after two years of similar treatment, but relapses are frequent. The Albee or other graft, with a long implant, at the close of the two years of treatment of an adult is an excellent supplement to the treatment, insuring against relapse. But it is not needed at the close of the above treatment in a child, as the healing is complete, in sound tissue. They suggest, however, that it might be a useful adjuvant to the classic treatment of children to implant a short graft, limited to the diseased vertebrae, to hold the articulation immovable more perfectly than is possible by any other means. The classic orthopedic treatment should be applied just the same until repeated roentgenography shows that a complete cure has been realized. They describe further their method of slitting and turning back the base on each side, after wedge excision of the spinous processes, to form a huge raw bed for a long implant.

**Surgical Anatomy of the Nerves of the Body of the Thyroid.**—Alamartine's research on man, horses and dogs demonstrated that the great nerve center for the thyroid is the superior cervical ganglion, and there are innumerable anastomoses between the vagus and sympathetic systems, especially in the laryngosympathetic plexus and the sympathetic-recurrent plexus. The nerves form two pedicles above and below and do not parallel the vessel pedicles, but they join the vessels close to the thyroid, and it is here that they should be severed, to reduce the functioning of the gland. Ligation of the vessels should include the severing of the nerve pedicles, especially of the superior pedicle. The results of this angioneurectomy of the superior pedicle in exophthalmic goiter have been exceptionally fine and constant. According to our present knowledge, the sympathetic fibers are vasoconstrictors, the laryngeal fibers vasodilators, but the numerous anastomoses blend their action, the vasodilators predominating in the superior pedicle. Sympathectomy therefore does not seem logical when aiming to reduce overactivity of the thyroid, but with exophthalmic goiter it proves effectual by suppressing reflex action from centripetal fibers rather than by any direct action on the gland.

## Revue Neurologique, Paris

May, 1920, **27**, No. 5

*Physiology of Antagonist Centers. L. Bard.—p. 417.
Histology of Acute Chorea. P. Marie and C. Trétiakoff.—p. 428.
Experiences with Intraspinal Treatment of Neurosyphilis. Belarmino Rodriguez.—p. 439.
*Progressive Lipodystrophy in Pharaoh. M. Ameline and P. Quercy.—p. 448.

**Physiology of Antagonist Centers.**—Bard explains the mechanism of the familiar fact that any peripheral sensory excitation causes the head and eyes to turn toward that side in normal conditions. He expatiates on the importance for physiology in general of the simultaneous action of antagonist centers, and the importance in pathology of the conflict between antagonist centers.

**Progressive Lipodystrophy in Pharaoh.**—Ameline and Quercy remark that since Boisonnas' statement last October in regard to the rarity of progressive lipodystrophy in adult males, a second case has been discovered. This is in the Pharaoh Amenophis IV, as deduced from the mural tablets of ancient Egypt. The special features of the disease, the loss of subcutaneous fat in the upper part of the body and the pronounced increase of fat deposits in the regions below the crest of the ilium, are portrayed in the pictures of this ruler, and have been recognized and diagnosed thirty-five centuries later. Thirteen mural pictures are reproduced, and the question is raised whether the anomalies portrayed may not have been due to pulmonary tuberculosis. Necropsy of the mummy might give interesting results.

## Annali d'Igiene, Rome

June, 1920, **30**, No. 6

Control of Sterilization of Catsups, etc. E. Bertarelli and Marchelli.—p. 309.
*Neutralization of Sex by Serotherapy. R. Giuliani.—p. 323.
Typhus. A. Ilvento.—p. 327. Cont'n.
Etiology of Yellow Fever. G. Sampietro.—p. 333.

**Neutralization of Sex.**—Giuliani presents evidence as to the feasibility of inducing practical castration, without operative measures, by merely treating with substances known to have a specific destructive action on the testicles or the ovaries. This biologic castration with cytolysins was tried with orchitolytic serum on rabbits, the serum obtained from goats periodically injected with solutions of the nucleoproteins from rabbit testicles in increasing doses. Five rabbits were treated with the serum, from 1 to 4 c.c. being injected at intervals of from three to eight days. Two of the rabbits died at once; one was killed in two weeks, by which time the testicles showed considerable atrophy, the seminiferous tubules containing granular detritus. The two other rabbits were killed after an interval of thirty or forty days, and the microscope showed profound changes in the parenchyma, the tubules scarcely recognizable; the whole testicle looked as if it had been emptied of its contents.

## Pediatria, Naples

September, 1920, **28**, No. 18

*Desensitization with Peptone After Serotherapy. L. M. Spolverini.—p. 841.
Bacteriologic Research in Influenza. Maria Sindoni.—p. 851.
Cerebral Diplegia and Little's Disease. R. Vaglio.—p. 856.

**Desensitization After Serotherapy.**—Spolverini reasoned that subcutaneous injection of peptone, which has proved so effectual in warding off anaphylaxis under other conditions might ward off the anaphylaxis from reinjection of an antiserum. His tests on twenty-nine children, from 2 to 6 years old, in the diphtheria ward at Rome confirmed these premises. He first injected horse serum, and nine or ten days later, by an intradermal injection of the same tested the degree of sensitization that had resulted. Positive findings were obtained in all but three, and with these exceptions all were given a subcutaneous injection of 10 or 15 cg. of dry peptone per kilogram, injected in a 5 per cent. isotonic solution. The intradermal test was repeated the next day, and two days after this the serum was injected in an amount suitable to bring on the attack of anaphylaxis if the children had not been desensitized. Ten controls, and tests with various other proteins confirmed the complete efficacy of the peptone in desensitization of the children. It thus seems possible, he says, to do away with the sensitization produced by repeated injection of serum by the simple expedient of a preliminary subcutaneous injection of peptone.

## Riforma Medica, Naples

Aug. 14, 1920, **36**, No. 33

*Mammary Cancer. D. Giordano.—p. 733.
*Prophylaxis and Detection of Tuberculosis. G. Boeri.—p. 736.
*Poisoning with Carlina. E. L. Tocco.—p. 742.
*Syphilis and Tuberculosis. R. Giurato.—p. 745.

**Bilateral Mammary Cancer.**—Giordano gives an illustrated description of two cases of bilateral mammary cancer and of the piece removed from another case, and relates that of his three bilateral cases one of the patients is in good health

fifteen years after the operation and excision of a recurring nodule in the scapula region. Another woman died the night following removal of both mammae, and necropsy revealed an unsuspected metastasis in the brain.

**Tuberculosis in Soldiers.**—Boeri expatiates on the lessons that can be learned from the experiences in the army and among the prisoners of war in regard to prevention and treatment of tuberculosis. Chief among them is the necessity for not limiting the search for tuberculosis to those with active lesions or the suspects. Those predisposed to the disease can be recognized by their physical aspect, the vertical, pendulum or drop heart, movable ninth or tenth rib, asthenia, dyspepsia, low pressure, tachycardia, the morbid susceptibility of the respiratory apparatus, bronchial weakness, "respiratory claudication," and respiratory incapacity of the apex, but above all by the findings in tests of the capacity of the respiratory apparatus, hypotrophy and tenderness of the outer margin of the trapezius, and hypertrophy of the sternocleidomastoid, especially on the sound side. He says that the amyotrophy and tenderness of the trapezius are not consequences of but parallel the tuberculous process, as also the sinking in of the chest wall and the lesser excursions. They may even precede manifest lesions as they are a neurotrophic reflex, in the line both of nourishment and function, between the lung and the respiratory muscles. In radioscopy, special attention should be paid to the smaller size of the lung space above the clavicle, especially if unilateral, to its less distinct aspect, and to the lesser movability of the diaphragm. Echinococcus cysts, complicating malaria, apical localization of Malta fever, and other lesions which might be mistaken for tuberculosis must be excluded. Differentiation is rendered easier by the fact that in these other pathologic conditions the lesions are liable to change about and vary from time to time, while the tuberculous are comparatively stable.

**Poisoning with Carlina.**—Tocco describes the clinical picture of poisoning with *Carlina gummifera* as he observed it in four children, two of whom died.

**Syphilis and Tuberculosis.**—In the course of his study of the resemblance between certain syphilitic and tuberculous conditions, Giurato tells the story of the tuberculous patient to whom the pharmacist gave by mistake a mercurial ointment instead of the electuary prescribed by the physician. The patient took the ointment internally, small doses two or three times a day, and was soon radically cured of his "tuberculosis." Giurato insists that even if tubercle bacilli are found in the sputum, this does not exclude possibly complicating syphilis. The absence of fever, the persisting good general health, and the greater tendency to dyspnea hint of syphilis.

## Rivista Critica di Clinica Medica, Florence

July 25, 1920, **21**, No. 21

Grocco's "Cap" Sign of Enlargement of Left Auricle. L. Siciliano.—p. 241.

Sept. 5, 1920, **21**, No. 25

*Intermittent Hydrocephalus. F. Schupfer.—p. 289. Begun in No. 24, p. 277.

**Primary Intermittent Hydrocephalus.**—The woman of 44 had had recurring periods of hydrocephalus since the age of 10. They developed about once a month or two months, usually independently of the menses. She had been pregnant nine times, bearing six children to term. The attacks of intense headache, vomiting, dimness of vision, inability to stand, and general agitation but no fever, lasted each for a few days, but gradually subsided by the tenth day without leaving a trace. The more recent attacks have been graver, bringing transient paralysis; the blood pressure is high, and the optic disk congested. Immediate lumbar puncture brings relief and seems to hasten the subsidence of the attack.

## Archivos de Neurobiología, Madrid

June, 1920, **1**, No. 2

*Psychology in Choice of Occupation. E. Mira López.—p. 129.
*Tactile Space. R. Turró.—p. 148.
*Transformation of the Microglia. P. del Río-Hortega.—p. 171.
Lethargic Encephalitis in Spain. G. R. Lafora.—p. 209.
The Cerebrospinal Fluid in Lethargic Encephalitis. W. Mestrezat and Belarmino Rodríguez.—p. 226.

**Psychology in Advising Choice of Occupation.**—Mira López describes the system of tests, psychic, physical and both combined, which are applied at the Instituto de Orientación at Barcelona to aid in the choice of a trade or profession.

**Tactile Space.**—Among the examples illustrating Turró's remarks on the sense of space, he cites the sensations in the stump after amputation of a limb. If the limb is amputated higher up, at a second operation, the new plane is the source of the same illusions as before.

**Rod Cells in Glia.**—Del Río-Hortega's extensive study of the normal and pathologic microglia is accompanied with eleven fine plates showing the transformation of the branched glia cells into long drawn out, rodlike shapes and granule cells. The causes for this transformation are discussed. The most striking specimens of these long rods were from the brain cortex in a case of general paresis.

## Semana Médica, Buenos Aires

May 20, 1920, **27**, No. 21

*Sarcoma of Sciatic Nerve Sheath. E. Rodríguez Villegas and P. Rojas.—p. 675.
*Research in Physiology. J. Guglielmetti.—p. 685.
*Food in Bad Condition. A. Marco del Pont.—p. 695.
Schools for Weakly Children. Garrahan and Pico.—p. 696.

**Sarcoma of Sheath of Sciatic Nerve.**—Rodríguez and Rojas give eighteen photomicrographs of the findings in the fibrosarcoma removed from the sheath of the right sciatic nerve of a woman of 32.

**Original Research in Physiology in Argentina.**—Guglielmetti reviews among others his own contributions to science, especially his research on the toxicity of emetin and the action of epinephrin on muscle.

**Prevalence of Indicanuria.**—Del Pont theorizes to explain the remarkable prevalence of indicanuria at Buenos Aires in the last few months. He is inclined to ascribe it to the bad condition of certain articles of food, probably refrigerated meats.

## Siglo Médico, Madrid

July 31, 1920, **67**, No. 3477

Disease in Cauda Equina. J. M. de Villaverde.—p. 565.

Aug. 7, 1920, **67**, No. 3478

*Heated Ether. A. Morales.—p. 585.
Congenital Cyst Infected from Vincent's Angina. J. M. Barajas y de Vilches.—p. 587. Conc'n in No. 3479, p. 608.
Modern Campaign Against Tuberculosis. A. Espina y Capo.—p. 591. Begun in No. 3473, p. 489.

**Excitement and Suggestion Under Ether.**—Morales lauds the advantages of heating the ether for anesthesia, saying that he has applied this thermo-etherization in 8,951 cases since 1887, and with constant satisfaction. Suggestion during the phase of excitement from the ether has often proved very useful, and he has even proposed utilizing this "ether suggestion" in examining persons accused of crimes.

## Acta Scholae Medicinalis Univ. Imp. Kioto

March 25, 1920, **3**, No. 3

Pharmacology of Chinese Remedy, "Sen-So." K. Kodama.—p. 299.
*Cocain Poison for Smooth Muscle. A. Gohara.—p. 321.
Influencing of Water Hemolysis by Aliphatic Narcotics. T. Yoshitomi.—p. 339.
Determination of Morphin in Urine. H. Oshika.—p. 351.
*Antagonism Between Epinephrin and Atropin. A. Gohara.—p. 363.
Pharmacologic Action of Dehydromorphin. H. Oshika.—p. 377.
*Effects of Thymotoxic Serum. H. Yamaoka and M. Ogata.—p. 391.
Embryology of Primitive Blood Vessel Cells in Amphibia. T. Yoshinaga.—p. 401.
*Antagonism Between Calcium and Magnesium. S. To.—p. 441.

**Cocain a Poison for Smooth-Muscle Organs.**—Gohara reports that experiments on surviving organs of rabbits and the human uterus demonstrated the incorrectness of the assumption that cocain acts on the sympathetic. It acts to stimulate in small doses and paralyze in large ones the motor functioning and the tonicity of almost all the smooth muscle organs, including the vessels.

**Antagonism Between Epinephrin and Atropin in Smooth Muscle Organs.**—Gohara's experiments seem to indicate that atropin paralyzes not only the parasympathetic nervous sys-

tem but also the stimulating sympathetic nerve elements. The inhibiting fibers seem to escape this action.

**Action of Thymotoxic Serum on Young Dogs.**—The embryologic, anatomic and physiologic independence between the thymus and the parathyroid glands is confirmed anew by these experiments on young dogs. The parathyroids developed apparently normally although the thymus had been practically destroyed by the action of the thymotoxic serum.

**Antagonism Between Calcium and Magnesium.**—The skeletal muscles seem to be paralyzed alike by these drugs, and their action is superposed. But their action differs on muscular organs, being antagonistic on the vessels.

## Archiv für Gynaekologie, Berlin

1919, **110**, No. 3

*Eclampsia. F. Westermark (Stockholm).—p. 517.
*Biologic Adaptation of the Newborn. P. Lindig.—p. 545.
*Packing the Uterus for Postpartum Hemorrhage. M. Brütt.—p. 619.
*Pathogenesis of Uterine Hemorrhages. R. Schröder.—p. 633.
*Postoperative Cystitis. P. Esch.—p. 659.
*Radiotherapy of Cancer. K. Eckelt.—p. 685.
*Endocrine Malfunction in the Pregnant. A. Mahnert.—p. 743.
An Acardiac Monster Fetus. J. Pok.—p. 767.
Position of Fetus and Pressure on Spine in Breech Presentation. K. Warnekros.—p. 793.

**Excision of Corpus Luteum in Treatment of Eclampsia.**—Westermark argues that the source of the eclampsia poison is in the lutein substance. Hence treatment should remove this source and reduce the poisonous substances already circulating by venesection and evacuating the uterus. He has treated seven women with eclampsia by excision of the corpus luteum, including four pregnancy and three puerperal cases. In none of the cases was any influence apparent on labor contractions from the loss of the corpus luteum. The albumin content of the urine grew less while the output of urine increased, and the general effect warrants continuance of research in this line. Extract of corpus luteum from pigs and cows injected into rabbits by the vein displayed a very pronounced toxic action, the liver and other organs showing changes remarkably like those found in human eclampsia. The gravid animals were more susceptible to the poisonous action than males or nongravid females. In 5 of his 7 clinical cases the ovaries were found small, the corpus luteum forming a third of the whole organ. As the convulsions are merely a symptom of the intoxication, it is not to be wondered at that they were not always arrested at once by the operation, but in most of the cases there were no further convulsions and in the others the attacks were milder.

**The Biologic Digestive Adaptation of the New-Born.**—Lindig presents evidence that the serum of young infants is provided with proteases capable of digesting any kind of casein. One of the practical conclusions of his research is that every effort must be made to insure for the new-born child—at least for a time—its own mother's milk and especially the colostrum. Only by this means does the child acquire in the easiest manner the capacity for digesting albumin, human or cow's. The casein of cow's milk is digested by the serum from the child's umbilical vein almost as perfectly as by serum from pregnant women. Since it has been made a practice to pump out all the available colostrum from the mother's breast after suckling, and feed it to the child, there has been much less of the so-called physiologic drop in weight during the first week, and no "transition catarrh" has developed which otherwise often is observed the third to fifth day. The child's digestive apparatus is thus gradually trained to digest albumin from milk of any source.

**Tamponing to Arrest Postpartum Hemorrhage from Inertia.**—Brütt states that the hemorrhage was arrested in all of 100 cases (out of a total of 10,000 maternity cases) in which the uterus was tamponed to arrest hemorrhage from inertia of the uterus. In only one instance was the tampon soaked with blood, compelling repacking.

**Pathogenesis of Uterine Hemorrhage.**—Schröder ascribes abnormally profuse menstrual hemorrhages to any factors inducing hyperemia or muscular insufficiency of the uterus. The course of the anatomic menstruation cycle, as a functional unit, is intact. It may likewise be intact with metrorrhagia, but metrorrhagia may be traced to derangement of extragenital organs, the heart, lungs, kidney or nervous system, or to polyps, myomas or cancer in the genital organs, or to endometritis. In the great majority of metrorrhagia cases there is a well characterized functional anomaly, namely, a persistence of the mature follicles with lack of ovulation and hence of corpus luteum formation. This entails pathologic proliferation in the endometrium under the influence of the hormone from the ripe follicle. This proliferation, by the progressive necrobiosis in consequence of vascular thrombosis, is the cause of the bleeding. This characteristic functional anomaly develops mainly at puberty and at the menopause, a true hemorrhagic metropathy. Treatment of metrorrhagia should be based on the one of the above causes that is responsible for the hemorrhage in the individual case. Measures to promote the ripening of the follicle and ovulation may be required.

**Postoperative Cystitis.**—Among the measures recommended by Esch to ward off postoperative cystitis is the administration of a disinfectant for the urine before the operation, so that if the catheter has to be used there will be less danger of infection. Another point is to measure the output of urine after the operation, bearing in mind that after much loss of blood the output is small. The sensation of distention of the bladder may be due to pressure from a tampon or the attitude in bed. While giving hexamethylenamin to disinfect the urine, he does not restrict the patient to a vegetable diet as this reduces the acidity of the urine which is needed to release the formaldehyd. For a similar reason he does not allow much fluid, as this would dilute the formaldehyd in the bladder and cause it to be thrown off too rapidly. On the other hand, alkaline mineral waters and a vegetable diet are indicated for the subacute and chronic catarrhal condition following acute cystitis. Application of heat from the abdomen and vagina may prove useful for pericystitis. When the cystitis is restricted to the trigonum it may resist treatment until locally treated. For this he advises using a Landau uterus dilator dipped in a silver nitrate salve.

**Radiotherapy of Genital Cancer.**—Eckelt declares that notwithstanding the improvement in technic in the last few years, radiotherapy is still impotent to cure deep-seated cancers, especially of the uterine cervix. Radium also is ineffectual except where it can be used, as in the cervix, to have the effect of a surface raying.

**Endocrine Malfunction in the Pregnant.**—Mahnert applied a refractometer Abderhalden micromethod to determine the presence in the blood serum of ferments against ovarian, thyroid and suprarenal albumin in a large number of pregnant and nonpregnant women. His tabulated findings by this means demonstrate malfunction of the ovaries in 80 per cent. of the pregnant women, malfunction of the thyroid in 57 per cent. and of the suprarenals in 42 per cent., the latter predominantly in multiparae. In the nonpregnant women no ferments of the kind could be discovered. He refers parenthetically to Kraus and Saudek's finding of a ferment against testicle albumin with a male fetus and against ovarian albumin with a female fetus. The maternal serum in his tests showed no distinction of the kind.

## Archiv für klinische Chirurgie, Berlin

March 26, 1920, **113**, No. 3

*Operative Treatment of Duodenal Ulcer. J. Hohlbaum.—p. 499.
*Pathology and Surgery of Lithiasis. C. Rohde.—p. 565.
*Constitutional Pathology of the Spine. E. Payr.—p. 645.
Insufficientia Vertebrae Not a Morbid Entity. E. Kirsch.—p. 699.
*Consequences of Severing the Vagus. M. Litthauer.—p. 712.
*By-Effects of Paravertebral Nerve Blocking. O. Wiemann.—p. 737.

**Operative Treatment of Chronic Duodenal Ulcer.**—The conclusions of this review of the ultimate outcome in fifty-nine cases of duodenal ulcer in Payr's service are rather pessimistic. The comparative frequency of peptic ulcer after conservative or even radical intervention, the inability to prevent and control hemorrhage and perforation, and the danger for the patient from resection render the outlook grave, while the nervous factor in the development of the ulcer and the good results reported occasionally from medical treatment justify considerable reserve in advising surgical treatment. Only when internal measures have failed, and visible or

occult hemorrhages persist or frequently recur, and when there is a tendency to stenosis, is operative treatment indicated; resection should be preferred.

**Pathology and Surgery of the Bile Passages.**—Rohde reports from Rehn's service the ultimate outcome in 107 operative cases of gallstones or inflammatory processes in the biliary passages. A complete cure seems to have been realized in 80.37 per cent. and in the others the condition has been much improved. No injurious effect from the cholecystectomy and T-drain was observed in any instance. Rehn is convinced that cholelithiasis represents a local process in the gallbladder, and hence that removal of the gallbladder is the only rational treatment when the gallstones are causing disturbance. In about 80 per cent. of all cases of cholelithiasis the gallstones never make their presence felt. In the total 107 cases, 10.28 per cent. developed jaundice, colics and fever later, traced to compression, adhesions or stenosis from preexisting lesions except in two cases in which calculi had developed in the ducts, in one on a basis of a scrap of suture material.

**Constitutional Pathology of the Spine.**—Payr devotes over fifty pages to this study of constitutional weakness of the spine and its ligaments. The abnormality may be of the nature of asthenia or of infantilism. With the pains and fatigue in the back and legs, sacral pains and other complaints of typical asthenia, the children should be encouraged to exercise and play games that will strengthen the spine, not weaken it by giving them a brace or corset. They need psychotherapy to encourage them and make them forget and outgrow their spinal disturbances, not prostheses to confirm them in their neurasthenia. When there is actual malformation of vertebrae the sensitive organ must be spared during the more painful periods, but general strengthening measures should be kept up and the choice of a vocation supervised.

**Consequences of Severing the Vagus.**—Litthauer divided the vagus in his experiments at six different points. The experiments were made on dogs with special regard to the effect on the stomach. Severing the vagi did not seem to affect the secretion of gastric juice after a meal either quantitatively or qualitatively. When the vagus was divided above the diaphragm, the secretion kept up in the empty stomach. On the whole, the effects of the experiments coincided fairly well with clinical experiences.

**By-Effects of Paravertebral Nerve Blocking.**—Wiemann induced regional anesthesia the day before the operation on the thyroid in a number of cases to determine the exact mechanism of the occasional by-effects with this form of anesthesia. The phenomena observed confirm that paravertebral conduction anesthesia is liable to be followed by signs of paresis of the sympathetic and vagus nerves. Those of the sympathetic are not important, but the simultaneous arrest of both sympathetic and vagus functioning is liable to induce serious disturbance in persons with overexcitable autonomic nervous system. He found that these by-effects can be avoided by making the injection at the posterior portion of the transverse process. In some of the cases roentgenoscopy revealed paresis of the diaphragm on the same side but without subjective disturbance. The pulse was sometimes slowed and sometimes accelerated or not influenced. Some of the patients who presented by-effects at this preliminary anesthetization, did not have any at the actual operation next day, although at the operation the paravertebral technic was applied on both sides and with three or four times as much of the anesthetic. The ptosis or miosis noted in some cases was evidently due to paresis of the sympathetic, but it was briefly transient. The work issues from König's service at Würzburg.

## Zeitschrift für Tuberkulose, Leipzig

December, 1919, **31**, No. 5

Influenza and Tuberculosis. E. Dorn.—p. 257.
*Classification of Pulmonary Tuberculosis. E. Fraenkel.—p. 267.
*Trauma and Tuberculosis. J. Orth.—p. 269.

**Classification of Pulmonary Tuberculosis.**—Fraenkel suggests to classify pulmonary tuberculosis as (1) acute miliary tuberculosis; (2) cheesy pneumonia; (3) subacute, disseminated small foci; (4) the nodular-cirrhotic form, chronic phthisis, with the three subdivisions: the hilus-apex process, the chronic progressive form, and the chronic stationary form; (5) the cirrhosis form of pulmonary tuberculosis, and (6) the obsolete form. The last two types include the inactive processes. The nodular-cirrhotic form includes the whole range of chronic focal destructive processes. This classification corresponds to the roentgenologic findings.

**Trauma and Tuberculosis.**—Orth here reproduces his testimony as medicolegal expert in five cases where workmen's compensation was claimed on account of pulmonary tuberculosis developing after trauma. These reports are being published serially.

## Zentralblatt für Gewerbehygiene, etc., Berlin

March, 1920, **8**, No. 3. Only medical articles listed.

*Occupational Diseases in China Workers. F. Koelsch.—p. 41.
*What Locomotive Engineers Die Of. Guradze and Sternberg.—p. 50.

**Occupational Pathology of China Workers.**—Koelsch found catarrhal conditions in the air passages in 3.2 per cent. of 1,000 china workers examined, and very nearly 50 per cent. presented evidence of "dust lungs," confirmed by roentgenoscopy. These changes were more pronounced the longer the work had been continued. The swallowing of the dust is liable to irritate the stomach mucosa and induce ulceration. Complaints of rheumatism are common among china workers as they get chilled when they leave the heat of the workrooms, and some of the work has to be done with constant moisture. Actual skin disease is rare.

**What Locomotive Engineers Die Of.**—Guradze and Sternberg tabulate the causes of death in 635 locomotive engineers from 1913 to 1917. Heart disease was responsible in 10.7 per cent; phthisis in 10.5 per cent., the latter a typical occupational disease from the smoke. Pneumonia was responsible in a further 10 per cent., and "nervous disease" in 10 per cent.

April, 1920, **8**, No. 4

*Bladder Tumors in Workers on Chemicals. Schwerin.—p. 64.
Test for Aromatic Amido Compounds in Urine. A. Kuchenbecker.—p. 68.
Transformation of Aromatic Amido Compounds in the Animal Body. A. Kuchenbecker.—p. 69.
Hydrogen Sulphid Poisoning in Cleaning Tannery Vat. Tauss.—p. 74.

May, 1920, **8**, No. 5

Fate of Beta Naphthylamin in Dog Organism as Throwing Light on Occupational Bladder Tumors. Engel.—p. 81.

**Bladder Tumors in Dye Workers.**—Schwerin found in 100 cases of bladder tumors in workers handling chemicals that in 79 per cent. the chemical involved had been fuchsin (rubin) or benzidin or naphthylamin, the average years of work being from twelve to nineteen with the first mentioned, six with the benzidin group and eight with the naphthylamin group of 30 cases. Schwerin operated on one benzidin male worker for papilloma after scarcely three years' handling of this chemical. In 3 cases an interval of two, eight and twenty-three years had elapsed after nine, five and three years of handling of the chemical. The bleeding from the bladder then was misinterpreted by the physician consulted in some in this group. In 50 per cent. of the total cases an operation was done, but only 18 were cured; 66 per cent. died. Recurrences were observed after seven, eight and eleven years, as well as after a few months. Even the apparently most harmless tumors of this kind must be regarded as malignant as cancerous degeneration is frequent. The bladder should be opened wide for excision into sound tissue. If the case is already inoperable, he injects 1 to 5 per cent. resorcin solution. This cauterizes the bleeding vessels and the tumor temporarily subsides. In 8 of the total 100 cases, anilin dyes had been handled and in 8 others other bases, with palatine black in 2, and blau I and patent blau in 1 case each.

## Mededeel. v. d. Burg. Geneesk. Dienst, Neth. Indies

1920, **2**. Parallel Dutch-English Edition.

*History of Sanitation in the Netherlands Indies. P. C. Flu.—p. 3.
Sex Ratio at Birth. A. Leber.—p. 15.
*Organized Medical Aid after the Kloet Eruption. A. J. Salm.—p. 17.
*Surgical Tuberculosis and Spirotrichosis Among Natives. T. Wieberdink.—p. 29.
The Psychosis of the Native in Relation to his Character. P. H. M. Travaglino.—p. 37.

Psychopathical Personalities. W. F. Theunissen.—p. 51.
*Leukocyte Count with Abscess of Liver. H. M. Neeb.—p. 67.
*Simplified Method of Registration in Behalf of State Medical Supervision in the Tropics. W. T. de Vogel.—p. 107.
*The Constitution in the Tropics. C. D. de Langen.—p. 153.

**History of Sanitation in the Netherlands Indies.**—This is the president's address at the opening of the first congress for natural and medical science in the Netherlands Indies. Flu reviewed the progress made in sanitation since Eijkman's pioneer researches there on the physiology of the tropics and the nature of beriberi, which laid the foundation for the study of deficiency diseases. "The hygienic work of the Americans," he continued, "in the isthmus of Panama is always held up as an example of tropical sanitation, but I, for one, while fully appreciating the important work done there by the Americans have greater admiration for the work of Schüffner, Kuenen and others here who have obtained a maximum of hygienic results with comparatively small means. For they had not, like their fellow workers in America, millions of dollars at their disposal for the sanitation of a piece of ground not even half so large as this one province of Batavia." Besides the several laboratories of the public health service, there is a college for training native physicians, organized in 1912. He referred among others also to pioneer work on the ameba and tetragenus, and to recent research which has determined the habits and habitat of the various species of mosquitoes in the islands.

**Care of the Injured After the Kloet Eruption.**—Salm reports how the military medical service organized relief work for the burned or otherwise injured by the eruption. It occurred in the night. There was a lake in the crater of the volcano, and the boiling water from this was forced up and out, the flood overwhelming several villages and reaching the town of Blitar in twenty minutes. Only fifty-two died of the 639 tended in the hospital units sent to twelve different points.

**Surgical Tuberculosis Among the Natives.**—Wieberdink relates that in forty-two cases of surgical tuberculosis among the natives given treatment at the Batavia public hospital in the last four years, he never succeeded in cultivating the sporothrix from the lesions, and in fact has never encountered a case of sporotrichosis among the 16,000 patients.

**The Leukocyte Count Differentiates Hyperemia of the Liver from Amebic Abscess.**—Neeb declares that the leukocyte count will distinguish between simple hyperemia of the liver in amebic infection and actual suppuration. With the latter, there is increasing leukocytosis but no eosinophils and scanty lymphocytes; the mononuclears fall off in numbers while the neutrophils increase, and there is considerable shifting to the left in the Arneth scale, and all these changes are progressive. With mere hyperemia, reverse conditions prevail and remain stationary. The findings in twenty-two typical cases are described.

**Chart to Aid in Computing Vital Statistics.**—De Vogel reproduces some huge folding charts which simplify registration in tropical regions where the majority of the populace are not in the habit of applying for professional medical aid when they are sick. The native health officials send in weekly reports of deaths and births. The system described is working well in Java and Madura, with their total 34,000,000 souls. This registration has shown, for example, that the north coast of Java during the dry season, August and September, has the highest mortality of the year, contrary to what would be expected from experiences elsewhere. Knowledge of such facts allows special precautionary measures to be taken.

**The Constitution in the Tropics.**—De Langen here brings down to date his theoretical considerations on the biochemical aspect of life in the tropics, and especially his assumption of the hypersensitivity of the sympathetic nervous system. He found that the cholesterin, other fats and calcium in the blood were below the normal level in European blood, but the sugar content was abnormally high. He ascribes the frequency of convulsions and spasmophilia to this deficiency in calcium. Experience has shown, in one hospital at least, that 3 gm. of calcium given daily to all the patients indiscriminately, seemed to hasten recovery and render it more complete. The uric acid content of the blood was found within normal range, identical with American values and perhaps a little higher than the European. He emphasizes that hypersensitivity of the sympathetic system does not necessarily imply a weakening of the antagonist system. The tonus of the latter may be normal, even although some of its effects may be dwarfed by the stronger sympathetic system. Klinkert's recent publications on eosinophilia (mentioned in these columns, Oct. 16, 1920, page 1103) are compared with these experiences in the tropics. There is some discordance between his views and the assumption of a tropical sympatheticonia which de Langen has found the rule.

## Hospitalstidende, Copenhagen

Aug. 4, 1920, **63**, No. 31

*Double Thalamic Syndrome with Slow Onset. V. Christiansen.—p. 473.

**The Thalamic Syndrome.**—Christiansen reports a case which differs from the classic description in that the symptoms developed gradually and on both sides in turn, first the intense pains in the one arm and then in the other and later in the legs. Months later the athetoid movements appeared, and finally incoordination disturbances. From his analysis of the case he deduces that the pathologic process must be of the Parkinson's disease type, only instead of the usual location of the process in the lenticular nucleus, as in true shaking palsy, it is located in the thalamus. He does not know of any other instance on record of the thalamic syndrome involving both arms and then both legs to some extent. The onset with the latter is sudden, while in this man of 64 the course was insidious and progressive. It is the first case of the thalamic syndrome to be published in Denmark.

Aug. 11, 1920, **63**, No. 32

*Generalized Retrograde Amnesia. A. Wimmer.—p. 489.

**Retrograde Amnesia.**—In the case reported by Wimmer the young woman was brought to the hospital by the police, as she was found wandering with total loss of memory. It developed a week after an emotional shock, her unjustly jealous fiancé having repudiated her. Wimmer says that only about twenty such cases have been published, the patient like an infant, newly born, so far as the previous personal life is concerned, while the abstract, social, moral and daily life conceptions and perceptions are normal. All remembrance of the previous personal life is temporarily obliterated. In this case it returned in a dream in a day or two; when she woke, her condition was normal. No signs of hysteria could be discovered.

## Ugeskrift for Læger, Copenhagen

Aug. 26, 1920, **82**, No. 35

Two Medicolegal Psychiatric Cases. G. E. Schrøder.—p. 1103.
Blood Pressure in Aviators. E. Grandjean.—p. 1112.

Sept. 2, 1920, **82**, No. 36

Results at Tuberculosis Sanatoriums. G. E. Permin.—p. 1129.
*Emphysema and Pendulous Abdomen. F. Teilmann.—p. 1135.
*Test for Bile Pigment in the Blood Plasma. H. C. Gram.—p. 1137.

**Emphysema and Pendulous Abdomen.**—Teilmann has found that treatment of enteroptosis will sometimes cure pains and other disturbances in the chest. These patients are stout, elderly working women and they usually are seated or reclining during the physician's examination. We are thus liable to overlook the connection between the pendulous abdomen and the symptoms in the chest. Patients of this class complaining of emphysema should be examined standing, and their symptoms relieved by mechanical or other means to correct the enteroptosis.

**Test for Pigment in the Blood.**—Gram remarks that the Meulengracht test for pigment in the blood serum enables the diagnosis of jaundice in dubious cases and oversight of the progress of the jaundice in established cases, while it also serves for the diagnosis of pernicious anemia. The precision of the test is somewhat impaired by opalescence in the serum, from platelets or fat. The fat can be avoided by taking the blood fasting, and the platelets can be centrifuged out, but this takes an hour's centrifuging with a powerful electric centrifuge. He describes how to apply the test with very little blood. The original technic was described in these columns, Jan. 3, 1920, p. 68.